

## Introduction

Fiscal support to people and firms during the coronavirus disease 2019 (COVID-19) pandemic has saved lives and reduced economic scarring. Together with the fall in revenues resulting from the crisis, however, these measures have yielded high deficits and a jump in debt (Chapter 1). Projections indicate that, by the end of 2021, debt as a share of GDP will be 18 percentage points higher than prepandemic levels for advanced economies, 10 percentage points higher for emerging markets, and 6 percentage points higher for low-income developing countries. Although higher deficits have been justified, they have boosted gross financing needs (Figure 2.1, panel 3), making countries more vulnerable to abrupt changes in market sentiment. They have also reduced the available fiscal buffers for governments to address future crises or challenges. Although there are no easy answers to how high debt can go without being disruptive, sovereign defaults have already occurred and several countries are under the scrutiny of markets. These issues lead to the question: What is the strategy for dealing with high levels of debt?

Meanwhile, addressing the health emergency remains a global top priority, especially in countries where the pandemic is not yet under control. Fiscal support is still needed to fight the health crisis and will remain invaluable until the recovery is on a strong footing (October 2021 *World Economic Outlook*). Debt has also been less expensive than during previous crises. Despite the increase in debt, the interest burden of debt has virtually been unchanged between 2019 and 2021 (Figure 2.1, panels 1 and 2) even though since 2014 interest payments as a share of revenues have been rising in low-income developing countries and, to a lesser extent, in emerging markets (Chapter 1).

Lessons from the global financial crisis have influenced how countries weigh different factors of their strategy.

Drawing down buffers enabled resilience during the global financial crisis. Countries at all income levels acknowledge the role of favorable growth developments and low interest rates for fiscal accounts. On one hand, premature tightening of fiscal policy or monetary policy could thus delay the recovery and be self-defeating. On the other hand, fiscal slippages could erode market confidence and lead to fiscal crises. The importance of central banks' support for stabilizing financing conditions has also been understood.

This said, some mechanisms that played out in one direction after the global financial crisis could play out differently after the pandemic. Global interest rates may rise sooner or more sharply than expected, increasing financing costs in most countries and increasing vulnerabilities in emerging and frontier markets (October 2021 *Global Financial Stability Report*). In many countries, fiscal buffers were not rebuilt after the global financial crisis and have now dwindled.

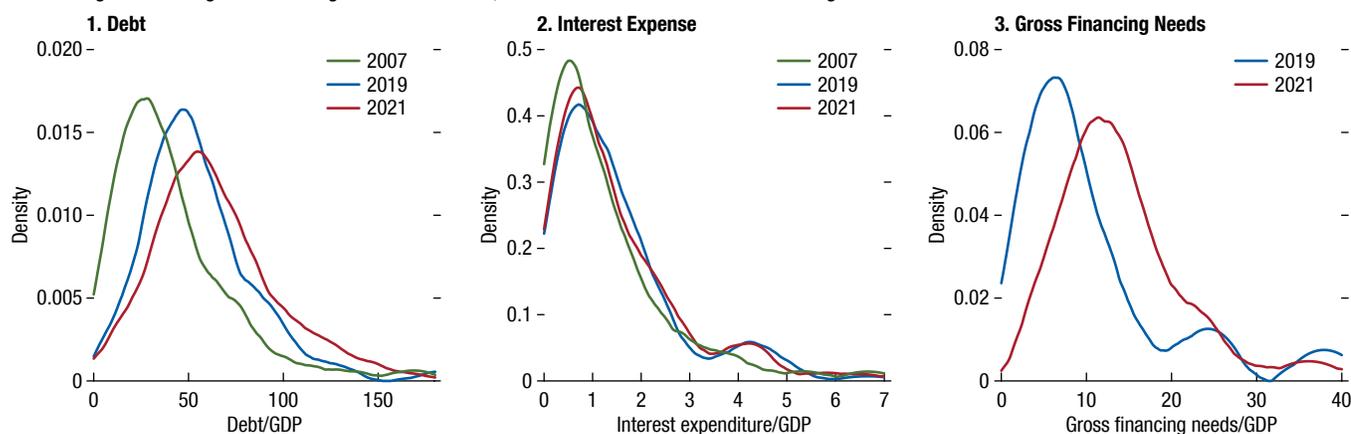
The exceptional crisis and policy responses triggered by the pandemic pose the challenge of discerning the best path for fiscal policy. Countries with fiscal vulnerabilities face a stark trade-off between further supporting their people and preserving some fiscal space for future possible emergencies ("fiscal space" can be defined as the ability of a government to raise spending or lower taxes without endangering market access and debt sustainability). This trade-off is made even more difficult by resistance to revenue mobilization efforts in many countries (Selassie and Tiffin 2021). However, a credible commitment to fiscal sustainability can buy flexibility and time. When lenders trust that governments are fiscally responsible, financing deficits is easier and cheaper.

This chapter highlights the importance of strengthening the credibility of public finances. "Fiscal credibility" can be defined as the public's confidence in the government's fiscal plans and ability to achieve its commitments, such as meeting debt obligations and being able to carry out announced tax and spending plans. Meeting debt obligations—and being expected to do so—is essential to secure financing. Raising taxes and carrying out spending plans predictably also help reduce the volatility that the private sector

This chapter was prepared by staff from the Fiscal Affairs Department. The authors of this chapter are Raphael Espinoza (Lead), Hassan Adan, Cristian Alonso, Bryn Battersby, Carlos Goncalves, Gee Hee Hong, Andresa Lagerborg, Roberto Perrelli, and Amanda Sayegh, with support from Andrew Womer, and under the guidance of Paolo Mauro (Deputy Director) and Paulo Medas (Division Chief).

**Figure 2.1. Debt, Interest Expense, and Gross Financing Needs across Countries, 2007, 2019, 2021**  
(Ratio to GDP)

Even though debt and gross financing needs have risen, the interest burden has been unchanged since 2019.



Source: IMF staff calculations.

Note: Panels 1 and 2 both cover 194 countries; panel 3 covers 56 countries. The increase in gross financing needs is almost entirely due to larger deficits.

faces (Fatás and Mihov 2003). Governments should therefore strive to build credibility and act predictably—the value of doing so under heightened uncertainty, such as now, may be even greater than in tranquil times (Baker, Bloom, and Davis 2016).

Fiscal frameworks can strengthen the credibility of fiscal policy and thus buttress market confidence and improve governments' access to finance. Fiscal frameworks are the set of rules, procedures, and institutions that guide fiscal policy. Fiscal frameworks comprise long-term fiscal targets, also called “anchors”—for instance, a debt ceiling; fiscal rules, which impose long-lasting constraints through numerical limits on fiscal aggregates such as expenditure, deficits, or debt; fiscal institutions, which are public bodies that act in the field of budgetary policy (for instance, fiscal councils);<sup>1</sup> and procedures that govern how budgets should be prepared, approved, and executed.

To clarify which fiscal frameworks are feasible and how to calibrate them, governments must first determine their strategy for debt, including the debt level targeted in the long run, and understand the risks to their fiscal accounts. The next section thus explores what should guide the strategy for public debt.

<sup>1</sup>Fiscal councils can be tasked with monitoring fiscal performance and compliance with fiscal rules; assessing the costs and impacts of fiscal policy measures; or preparing independent macroeconomic forecasts, which are used as the basis for preparing budget projections in a few countries (including *Austria*, *Slovenia*, and the *United Kingdom*).

The chapter then presents the main fiscal risks countries are exposed to and discusses how to integrate and mitigate them within fiscal frameworks. The chapter next discusses how to adapt the design of fiscal frameworks (such as the type of anchor and the flexibility provided by fiscal rules) for the postpandemic environment.

### What Should Guide the Strategy for Public Debt?

The varying degree of fiscal support across countries during the pandemic has been a powerful reminder of the benefits of preserving access to finance (Chapter 1). Whereas advanced economies have been able to react forcefully to the pandemic, support in other countries—especially in low-income developing countries—has been more modest, even though many of these countries have been hit hard by the crisis. Governments' varying ability to finance higher deficits and take risks onto their balance sheets has been perhaps the most important factor explaining why some countries could do more than others.

Among the costs of high debt—particularly when it is denominated in foreign currency or is of short duration—one of the most important is the constraint it imposes on fiscal policy when larger deficits are needed (World Bank 2015; Chapter 1). This constraint originates both from difficult financing conditions when fiscal situations are weak and from policymakers' concerns with high debt (Romer and Romer 2019). Over the past

two decades, many emerging markets and low-income developing countries have progressively graduated from fiscal procyclicality by building fiscal buffers, reducing the risk of debt distress, and improving the quality of their institutions (Calderón and Schmidt-Hebbel 2008; Frankel, Végh, and Vuletin 2013). Calibrating debt objectives to preserve this achievement is a key step before designing a fiscal framework to achieve it.

### Rebuilding Fiscal Space

Although the debt-to-GDP ratio cannot grow without limit, there is no magic number for the debt target. Macroeconomic theory does not prescribe a specific debt target; nor is there a clear threshold above which debt might become particularly harmful to economic growth (Eberhardt and Presbitero 2015) because this association depends on country-specific factors and can change over time. Rising debt eventually leads to higher borrowing costs, and empirical analyses have found that high debt is a significant predictor of fiscal crises. These estimations provide useful operational guidance when defining thresholds for debt in risk assessment exercises, which also take into account other factors that affect the likelihood of crises (Cerovic and others 2018; Moreno Badia and others 2020).

To shed light on the fiscal challenges ahead, a simple exercise can quantify the multiyear increase in the primary balance that countries would need to achieve to bring debt back to 2019 levels by 2045. Although this target does not constitute a recommendation, it helps gauge the actions that governments may need to consider as they plan their fiscal strategies. The exercise takes as given the primary balance, growth, and real interest rate in baseline projections for 2021–23 from the April 2021 *World Economic Outlook* and computes the average primary balance needed in 2024–45 to bring the debt-to-GDP ratio back to 2019 levels by 2045. The calculations assume that the long-term growth rates are constant and equal to IMF staff projections for 2024–26 and that the effective real interest rates after 2023 are 1 percent for advanced economies and 2.5 percent for emerging markets and low-income developing countries.<sup>2</sup>

The results show that the average primary surplus required to bring debt to pre-COVID-19 levels would

<sup>2</sup>The interest rates assumed in this exercise are lower than historical averages to reflect that, since the global financial crisis, interest rates have been consistently lower than historical averages.

have to be higher than in 2010–19 by 0.5 percent of GDP for the typical advanced economy, 1.0 percent of GDP for the typical emerging market, and 0.3 percent of GDP for the typical low-income developing country.<sup>3</sup> The required adjustment is lower for low-income developing countries because the jump in debt in 2020 was smaller than that in emerging markets. The results are very sensitive to the macroeconomic assumptions. For example, if the average real effective interest rates are set higher, at 2 percent for advanced economies and 3.5 percent for emerging markets and low-income developing countries, the needed increase in the primary surplus would be higher, at 1.2 percent of GDP for advanced economies, 1.6 percent for emerging markets, and 1.0 percent for low-income developing countries.

Various factors might call for a more, or less, ambitious objective than returning to 2019 debt levels:

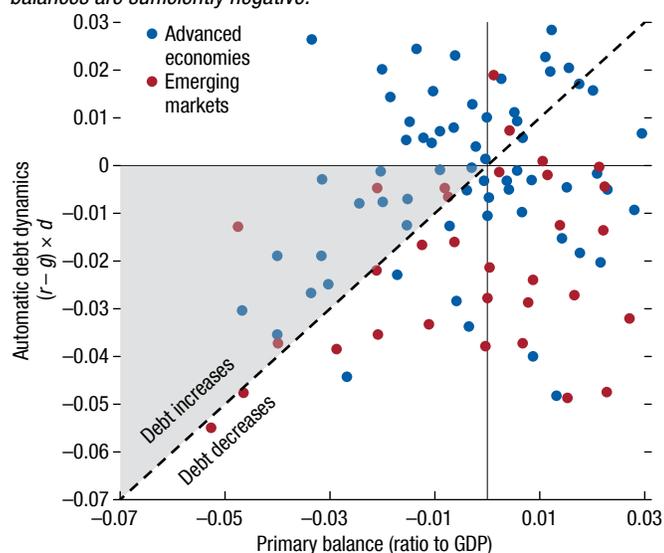
- For countries that did not have enough fiscal space at the beginning of the COVID-19 crisis, targeting a long-term debt lower than the 2019 benchmark would allow these countries to build up a buffer and thus make it easier to respond to future crises.
- Macroeconomic uncertainty may have increased. The Great Moderation—the period of exceptional macroeconomic stability between the mid-1980s and the global financial crisis—was followed by two of the four largest recessions in 100 years (Kose and Sugawara 2020). In the years ahead, growth may disappoint, uncertainty could remain acute, and climate-related shocks could be more frequent and more severe. Buffers need to be larger if fiscal accounts are exposed to greater risks.
- The capacity of countries to carry debt may, however, have improved as the demand for savings increased globally (Rachel and Summers 2019), especially in countries where institutions have become stronger.
- The debt-to-GDP ratio may converge to a stable value eventually, even in the presence of large primary deficits, if economic growth rates exceed interest rates (Blanchard 2019).

This last result holds only in the very long term, however, and may not have much relevance within the

<sup>3</sup>If the horizon for returning to the 2019 debt-to-GDP ratios is shortened to 2035, the needed primary surpluses would be 0.9 percent of GDP higher than in the past for advanced economies, 1.4 percent higher for emerging markets, and 0.5 percent higher for low-income developing countries. These calculations use unweighted averages, excluding *Venezuela* and emerging markets and low-income developing countries with a population smaller than 1 million.

## Figure 2.2. Contributions of the Interest Rate–Growth Differential and Primary Balance to Debt Dynamics

Even where  $(r - g)$  is negative, the debt-to-GDP ratio can rise if primary balances are sufficiently negative.



Source: IMF, April 2021 *World Economic Outlook*.

Note: Data are reported as the contribution to change in the debt-to-GDP level over a 10-year period, in percentage points. The definition of “debt increases/decreases” assumes zero stock-flow adjustment. Each dot represents the change in the debt-to-GDP ratio for a country-decade. The shaded area indicates debt increases that occurred when the primary deficits prevailed over the contribution of a negative interest rate–growth differential, which is computed as  $(r - g) \times d$ , where  $d$  is the debt-to-GDP ratio.

horizons of policymakers and lenders. Indeed, looking at 10-year windows, historical data show that in many advanced economies and in some emerging markets, when the differential between the interest rate to service government debt and the growth rate of the economy  $(r - g)$  was negative, the debt-to-GDP ratio rose as primary fiscal balances were sufficiently negative (Figure 2.2).

Complementary strategies to reduce the burden of debt may also help, although they come with risks. If inflation is sufficiently low, monetary policy can support debt reduction by lowering real interest rates and thus the government’s interest bill. Accommodative monetary policy also increases the effectiveness of a fiscal stimulus—that is, the fiscal multiplier is larger when interest rates stay low. A central bank can also use asset purchases or its communication to address short-term market stress, thus facilitating low sovereign yields. However, the credibility and independence of a central bank is essential to the credibility of the fiscal framework and should thus not be jeopardized for the

short-term fiscal gain provided by unduly loose monetary conditions.

Liabilities restructuring and financial repression have reduced debt levels substantially in the past, but they are also often associated with declines in output, investment, credit, and trade finance (Sturzenegger and Zettelmeyer 2007), although preemptive restructurings may carry lower costs (Asonuma and Trebesch 2016). In countries where debt is held mostly domestically, restructuring may also raise concerns for the stability of the financial sector (IMF 2021b). Confidence crises can also generate negative externalities, such as the spread of market turmoil to other countries. A loss of confidence in an issuer of a reserve currency, while highly unlikely, could have systemic consequences for the international financial system (Farhi and Maggiori 2018).

## The Trade-Off with Supporting the Recovery

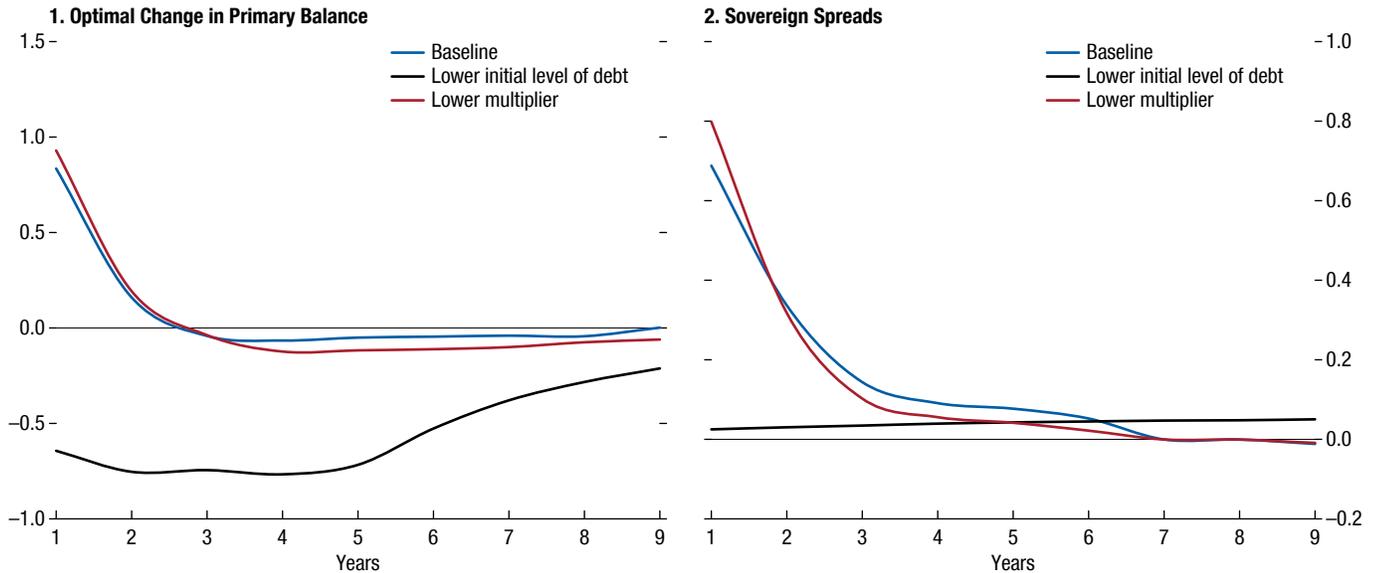
Where preserving and rebuilding buffers is desirable, the timing and pace of reducing deficits needs to be carefully considered.<sup>4</sup> Country-specific conditions would determine the appropriate timing:

- *Pandemic phase.* Countries that are still struggling to contain the virus need to continue protecting lives and livelihoods, including with stronger safety nets. Even where the virus is under control, prolonging fiscal support could still be the correct choice if recovery is slow and fiscal space remains. For countries without fiscal space and in the midst of the pandemic, external financial support, requesting an IMF-supported program, or debt restructuring may be needed. Accommodative monetary policy can ease the transition to tighter fiscal policy in cases of limited fiscal space.
- *Balance sheets and risk premiums.* The initial level of debt is key when determining the appropriate policy stance, according to a model that evaluates the trade-off between stimulating an economy during a recession and preventing spikes in sovereign debt spreads (Bianchi, Ottonello, and Presno 2021; Figure 2.3; Online Annex 2.1). Before the pandemic, a representative emerging market would have procyclically

<sup>4</sup>To some extent, the economic recovery after COVID-19 would help rebuild buffers automatically through the effect of stabilizers in the tax system and social safety net. The following discussion focuses on additional discretionary fiscal measures.

**Figure 2.3. Optimal Fiscal Policy after a Recession**

Some countries face a difficult trade-off between stimulating an economy in recession and preventing spikes in sovereign debt spreads.



Source: Based on the model in Bianchi, Ottonello, and Presno (2021).

Note: Data are shown as deviations from a counterfactual economy not affected by the recession. In panel 1, those deviations are in percent of GDP; in panel 2, they are in percentage points. Both panels show results as deviations relative to a case without the recessionary shock. In the baseline, government external debt is 23 percent of GDP. A lower initial level of debt corresponds to an economy whose government external debt in the initial period is 75 percent lower than the baseline. The lower multiplier is 7 percent smaller on impact than the baseline. In the baseline, the government of a typical emerging market economy optimally responds to a recession by increasing the primary balance by 0.8 percent of GDP (panel 1) to mitigate the effect of higher spreads. Even with such an optimal response, sovereign spreads increase by 0.7 percent on impact (panel 2).

reduced its primary deficit during a recession to mitigate the increase in sovereign debt spreads. Countries with lower levels of debt tend to benefit from lower and less sensitive risk premiums, which increase the ability to respond to a crisis.

- **Multiplier.** A lower fiscal multiplier (for instance, a smaller effect of government spending on short-term growth) would strengthen the case for reducing deficits because the spike in sovereign spreads is worsened (Figure 2.3, panel 2; see also Fournier 2019). The value of delaying deficit reduction thus critically depends on how deficits are used. Public investments are especially valuable if they are well chosen and efficient to support the recovery, raise productivity, or facilitate attaining the United Nations Sustainable Development Goals (October 2020 *Fiscal Monitor*; Benedek and others 2021).
- **Scarring.** The risks of economic scarring (or hysteresis—permanent adverse effects of a crisis on output) from the pandemic are substantial (April 2021 *World Economic Outlook*), especially for those emerging markets and low-income developing

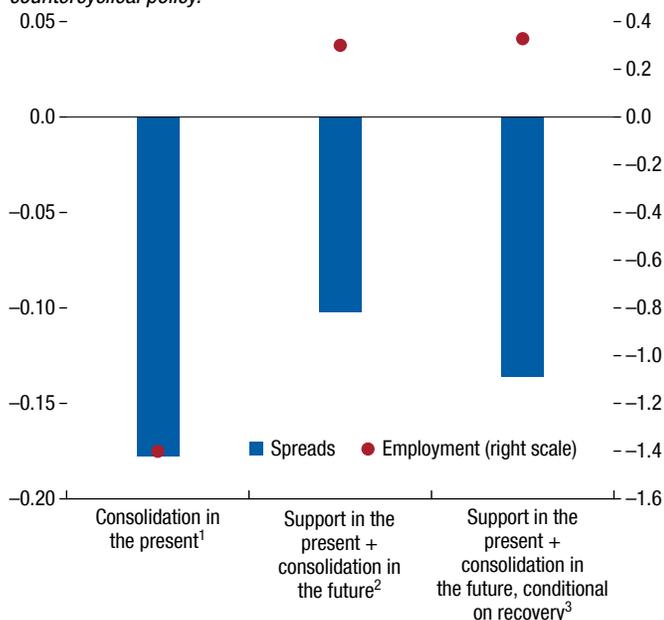
countries where vaccination has lagged and fiscal support has been limited.<sup>5</sup> Although it is difficult to estimate the magnitude of hysteresis in past crises (Blanchard 2018) or in the current one, the possibility of persistent effects of recessions points to the long-term benefits of countercyclical fiscal support, which, where it is feasible, could even pay for itself through higher economic growth (DeLong and Summers 2012; Cerra, Fatás, and Saxena 2020).

- **Debt composition and investor base.** High levels of debt with short maturities increase the risk of self-fulfilling debt crises (Cole and Kehoe 2000). Countries that have larger shares of debt issued in domestic currency, debt with longer maturity structures, or more stable investor bases are less exposed to sharp changes in borrowing conditions and can better afford to provide temporary support to the economy during a recession.

<sup>5</sup>Although the Debt Service Suspension Initiative helped increase COVID-19-related spending in some low-income developing countries, it was not enough to prevent a reduction in other priority areas, including education and public investment (Chapter 1).

**Figure 2.4. Timing of Consolidation and Effect on Bond Spreads and Employment**

*Committing to lower deficits reduces spreads and allows for countercyclical policy.*



Source: Based on the stochastic model in Bianchi, Ottonello, and Presno (2021). Note: Data are shown as deviation from the baseline in the first year, in percentage points. See Online Annex 2.1 for model details. In all cases, the consolidation is expenditure based.

<sup>1</sup>Corresponds to tightening of the deficit by 0.5 percent of GDP in the current year.

<sup>2</sup>Corresponds to a loosening of the deficit by 0.1 percent of GDP in the current year and tightening by 0.5 percent of GDP the following year.

<sup>3</sup>Implies a loosening of the deficit by 0.1 percent of GDP in the current year and a tightening by 0.7 percent of GDP in the following year only if the economy has emerged from the recession.

A country is able to undertake more countercyclical fiscal policies if it can credibly promise to contain future deficits. This policy space is afforded by the decline in risk premiums obtained by committing to fiscal sustainability. For example, an emerging market that tightens the primary balance by 0.5 percent during the year of recession would see an additional loss of employment of 0.2 percent in that first year, but if it credibly commits to reducing deficits by 0.5 percent of GDP after the worst of a crisis is over, it could afford a modest support the year of a recession and experience a small rise in employment compared to the baseline (Figure 2.4). Making fiscal consolidation depend on the health of the economy in the future (for example, by promising to consolidate only if the recession has been overcome) would further improve macroeconomic outcomes. In particular, fiscal consolidation may be less costly in terms of growth if

the economy is already booming by then (Auerbach and Gorodnichenko 2012).

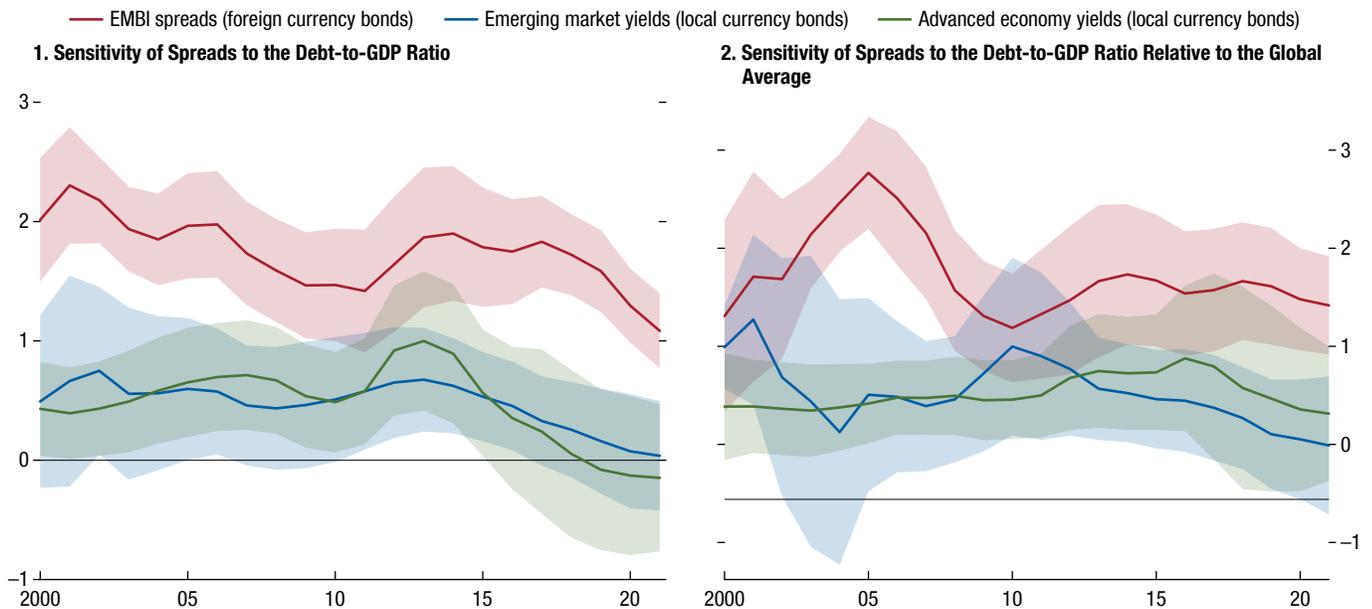
In practice, governments can commit to future fiscal efforts in different ways, but some upfront action may be needed in countries where the track record is weak, because building credibility takes time. Fiscal frameworks that embed future deficit reduction can be adopted after building the necessary consensus. Changes to taxes or spending can be prelegislated (for instance, the *United Kingdom* announced in March 2021 that the rate of corporate tax for large companies would be raised as of April 2023) and can be made contingent on the recovery (*Israel* prelegislated a sunset clause for extended unemployment benefits contingent on the unemployment rate). Structural fiscal reforms that reduce deficits durably (for example, pension reforms, subsidy reforms, public employment, and wage reforms) can be legislated promptly but implemented gradually and designed so that their effects on activity and vulnerable populations are mitigated. Countries can also enter into IMF-supported programs (or EU programs in Europe) given that those often help improve credit ratings and lower sovereign spreads by providing financing and a transparent and independent monitoring of fiscal discipline (David, Guajardo, and Yépez 2019; Balima and Sy 2021).

### Has Debt Carrying Capacity Increased in Recent Years?

The appropriate timing for reducing debt depends crucially on debt-carrying capacity—that is, how much a country can borrow before the cost of servicing debt rises so much that it starts harming growth. Since the beginning of the crisis, sovereign spreads have widened modestly so that, with the decline in interest rates in advanced economies, real bond yields in 2021 have remained close to historical averages (see Online Annex 2.2). Lower risk premiums may reflect a broad-based increase in debt-carrying capacity as a result of expectations of low-for-long interest rates but also a weakened relationship between spreads and fiscal fundamentals. The former could also cause the latter, given that the reduction in the price of risk may be linked to loose monetary policy (Kekre and Lenel 2018) and the exceptional central bank interventions—especially quantitative easing—that started during the global financial crisis and were rekindled to fight the COVID-19 crisis. On one hand, if the weakening of the nexus between interest rates and debt were long-lasting—for example, because

**Figure 2.5. Sensitivity of Spreads to Debt**

The relationship between interest rates and debt levels has weakened in recent years (panel 1), but the sensitivity of emerging market foreign currency spreads to debt relative to the global average has remained constant since 2013 (panel 2).



Sources: IMF, World Economic Outlook database; J.P. Morgan; and IMF staff calculations.

Note: Panel 1 reports the three-year moving average estimated regression coefficient on the government debt-to-GDP ratio in regressions of the logarithm of sovereign EMBI spreads (or yields in local currency) on the government debt-to-GDP ratio, country fixed effects, and a set of control variables, including a vector of country-specific macro fundamentals. Shaded areas denote 90 percent confidence intervals. Panel 2 presents the regression coefficients for a similar regression, but controlling for all possible global factors using time dummies, so that the regression can be interpreted in terms of the sensitivity of spreads to the difference between debt and the average debt across countries in each period. The full sample for EMBI spans December 1997 to May 2021; for emerging market yields, it spans January 1991 to May 2021. See Online Annex 2.2. EMBI = JP Morgan Emerging Market Bond Index.

of a global increase in savings as a result of demographics or secular stagnation—debt carrying capacity could have persistently increased. On the other hand, if recent trends were temporary, as argued by Goodhart and Pradhan (2020), the decline in funding costs and weakening relationship between risk premiums and debt could reverse.

An empirical analysis suggests that interest rates have become less sensitive to debt levels in recent years (Figure 2.5, panel 1). For instance, a 1-percentage-point increase in the debt-to-GDP ratio would have raised emerging market spreads in foreign currency by 2 percent in the early 2000s but by less than 1.5 percent in 2020. A similar decline is found for interest rates in local currency borrowing for both advanced economies and emerging markets.<sup>6</sup> However, for emerging markets, the weakening in the

<sup>6</sup>Emerging markets face trade-offs between local and foreign currency borrowing. The former provides a better hedge against external shocks and reduces incentives to monetize debt (see, for example, Panizza and Taddei 2020) but tends to be more expensive. The option to borrow internationally in local currency is limited for many emerging markets and developing countries.

sensitivity of foreign currency spreads to debt levels may stem in part from global factors: after accounting for such factors, the sensitivity of emerging market foreign currency spreads to debt, relative to the global average, has remained constant since 2013 (see Figure 2.5, panel 2). In addition, the sensitivity of spreads to the relative level of debt of each country has exceeded the sensitivity to the global average debt level (see Online Annex 2.2). As a result, for an emerging market with stable debt, interest rates were reduced as global debt increased. This may be the case because countries are evaluated relative to each other, for instance, by rating agencies (October 2019 *Global Financial Stability Report*).

Given that the decline in the sensitivity of spreads to debt levels is not well understood, there is no guarantee it will last. The global demand for savings was exceptionally high in 2020 because consumer spending was constrained by mobility restrictions. Savings have been partially channeled by the financial system to fund the large gross financing needs of governments, including those of emerging and frontier markets. The global,

synchronized increase in savings is likely to be at least partially reversed as advanced economies exit the pandemic sooner than the rest of the world. Market turmoil could also hit a vulnerable country and expand to similar countries if the price of risk rises globally.

## Assessing and Managing Fiscal Risks

Fiscal frameworks need to be designed considering the possibility that unexpected fiscal costs will be incurred in the years ahead, whether from a global crisis or country-specific shocks. Since 2007, the world has been hit by two of its worst crises in 100 years. Such shocks put pressure on fiscal frameworks as revenues collapse, more spending is needed, and debt jumps. Fiscal frameworks need to be flexible to allow for such responses when it is desirable, but they must also ensure that large public debt increases in crisis times are offset by progressive debt reduction in good times so that debt does not grow excessively in the long term (Escolano and Gaspar 2016).

Understanding the magnitude and source of fiscal risks is thus essential to designing fiscal frameworks. There is major uncertainty around the evolution of the pandemic and, even in countries where the virus appears to be under control and the economy is recovering, the long-term scarring effects of the crisis could be significant. In the aftermath of a crisis, fiscal risks can also be large. In the five years that followed the global financial crisis, debt increased in all country groups by much more than had been anticipated at the end of 2009 (Chapter 1). Exposure to higher global interest rates and risk premiums is also larger as debt and gross financing needs increased. Moreover, many countries now have larger risks on their balance sheets and larger contingent liabilities, from implicit guarantees to state-owned enterprises and from corporate support programs undertaken during the COVID-19 crisis to protect firms and jobs. In fact, fiscal risks created by state-owned enterprises (Ter-Minassian, 2017), net acquisition of underperforming financial assets (Jaramillo, Mulas-Granados, and Kimani 2017), and broader exposure to private sector debt (Moreno Badia, Gamboa Arbelaez, and Xiang 2021) have been identified as drivers of stock-flow adjustments behind large debt increases. Because balance sheet risks and contingent liabilities are more likely to materialize when growth is slow, the risks of further large jumps in debt are significant (Bova and others 2016). The world may now be more prone to pandemics and climate-related disasters (UK Office for Budget Responsibility 2021).

To be credible, governments should design fiscal frameworks that account for and manage fiscal risks. In particular, risk analysis should inform the fiscal targets and the flexibility embedded in frameworks to allow for countercyclical response to crises, budgets should account for expected costs of loan guarantees, and frameworks should cover at least the general government and be complemented by fiscal data for the whole public sector.

## Explaining Unexpected Increases in Debt

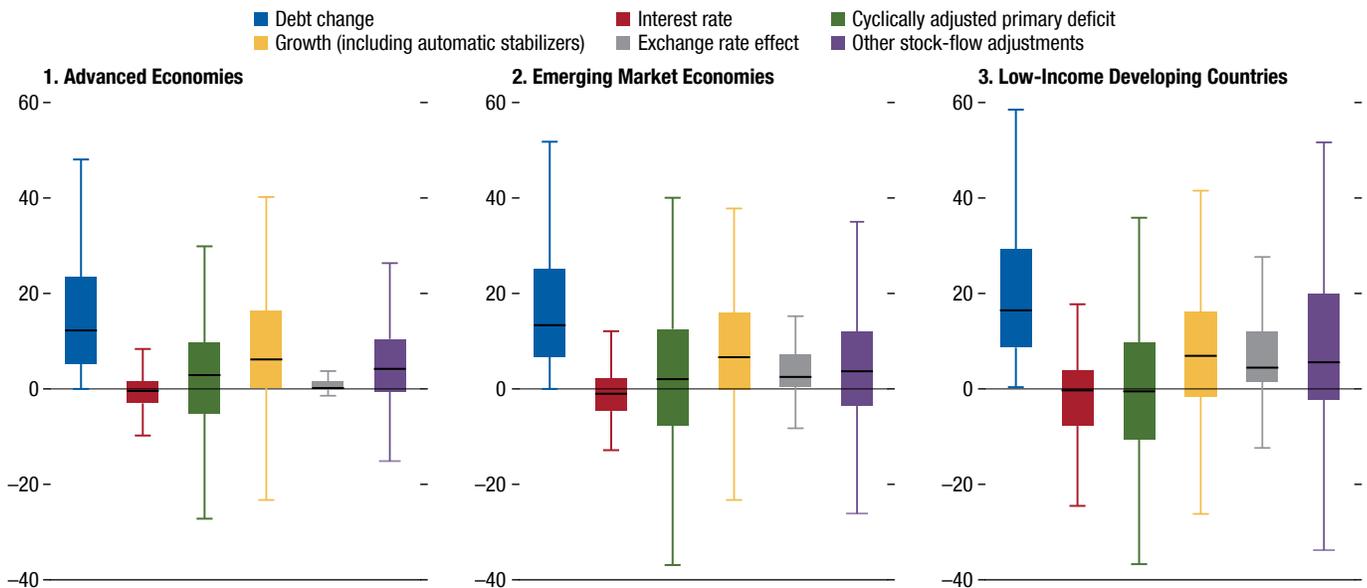
Although comprehensive fiscal risk assessment involves a range of analyses—such as stress tests, vulnerability analysis for state-owned enterprises, or credit evaluation techniques for loans and guarantees (IMF 2016; Saxena 2017; Baum and others 2021)—a simple exercise can identify the main drivers of unexpected increases in public debt (Online Annex 2.3; Alonso, Perrelli, and Xiang, forthcoming). This is done by comparing the expected macro-fiscal paths anticipated in past medium-term projections with the developments that occurred afterward. Specifically, unexpected changes in debt can be decomposed into those originating from each of the factors considered in a debt sustainability analysis—that is, real interest rates, real growth rates (including their effect on deficits through automatic stabilizers), cyclically adjusted primary balances, valuation effects associated with real exchange rate movements, and other stock-flow adjustments.

The IMF regularly publishes debt projections for most countries over forecast horizons from one to five years. Comparing historical projections for the longest horizon with the realized macro-fiscal developments yields several insights (see Figure 2.6 and Online Annex 2.3 for the methodology):

- Considering all unexpected increases in the debt ratio over five-year windows during 1995–2019, the median jump was 13.6 percent of GDP over the period covered: 16.5 percent of GDP for the median low-income developing country; 13.4 percent of GDP for the median emerging market; and 12.3 percent of GDP for the median advanced economy. Given that debt levels are, on average, lower at lower levels of income, these findings imply that unexpected jumps in debt are larger in both absolute and relative terms at lower levels of country income.
- The main drivers of unexpected jumps in debt in all country groups were disappointing growth outcomes

**Figure 2.6. Drivers of Unexpected Jumps in Debt in Five-Year Windows, 1995–2019**  
(Percent of GDP)

The main drivers of unexpected jumps in debt were disappointing growth outcomes and larger-than-anticipated stock-flow adjustments.



Sources: IMF, World Economic Outlook database; and IMF staff estimates.

Note: The decomposition uses annual observations for projections at the five-year horizon, obtained from the October *World Economic Outlook* vintages released over 1995–2019. The actual changes in debt at a five-year horizon are computed for each year for each reporting country and are compared with the contribution of unexpected changes in the main components of the debt's law of motion. The contribution of economic growth includes its effect on the primary fiscal balance through automatic stabilizers because worse-than-expected growth deteriorates the primary balance as revenues fall with economic activity, but expenditures do not (as in Mauro and Zilinsky 2016). See Online Annex 2.3 for details.

and larger-than-anticipated stock-flow adjustments. Growth matters for the debt-to-GDP ratio both through the denominator effect and through an effect on fiscal balances because fiscal revenues fall with economic activity (the automatic stabilizers), but expenditures do not (Online Annex 2.3). Considering all countries, the median contribution of growth forecast errors to unexpected increases in debt over the past 25 years was 6.5 percent of GDP, and the contribution of surprises in stock-flow adjustments was 4.3 percent of GDP.

- Exchange rate depreciations and other stock-flow adjustments are important especially in emerging markets and low-income developing countries for multiple reasons: insufficient information on quasi-fiscal operations; buildup of arrears; materialization of contingent liabilities, such as those stemming from state-owned enterprises (Ter-Minassian 2017; April 2020 *Fiscal Monitor*); acquisition of financial assets (Jaramillo, Mulas-Granados, and Kimani 2017); forecasting using incomplete statistics; and creative accounting. Overall, stock-flow adjustments tend to be larger for countries with weaker fiscal transparency (Weber 2012). The 75th percentile of

the contribution of stock-flow adjustment (excluding exchange rate effects) reached 10 percent of GDP in advanced economies, 12 percent of GDP in emerging markets, and 20 percent of GDP in low-income developing countries.

- The median contribution to debt jumps of surprises in cyclically adjusted primary balances (cumulatively, at a five-year horizon) was in the range of 2 to 3 percent of GDP for advanced economies and emerging markets but only 0.5 percent of GDP for low-income developing countries. Nevertheless, the performance of projections was widely dispersed, with the 75th percentile of the contribution reaching 9.8 percent of GDP in advanced economies, 12.5 percent of GDP in emerging markets, and 8.3 percent of GDP in low-income developing countries.
- In the past 25 years, real interest rates have often turned out lower than projected. Real interest rate surprises at a five-year horizon thus have had little effect on unexpected debt increases (median contributions of less than 0.5 percent of GDP in advanced economies and low-income developing countries, and 1 percent of GDP in emerging markets).

Given the importance of the materialization of these fiscal risks for debt dynamics, most advanced economies—and several emerging market and low-income countries—routinely assess the sensitivity of fiscal aggregates to plausible changes in key macroeconomic parameters, such as growth, commodity prices, and exchange rates (International Budget Partnership 2019).<sup>7</sup> These exercises inform fiscal strategies and the design of fiscal frameworks. To improve the reliability of such exercises, it is necessary to systematically assess their capacity to identify fiscal risks ahead of time. An analysis of European Commission debt sustainability analyses and IMF debt sustainability analyses (see Box 2.1) shows that risks to debt sustainability from unexpected changes in real GDP growth have been well captured overall, although the performance of scenario analysis tends to decline at a longer horizon. Similarly, risks emerging from exchange rate depreciation, primary balance slippages, and contingent liabilities have been better identified at a short-term horizon than at a medium-term horizon. A risk that is not well captured by these debt sustainability analyses—and that is not frequently included in fiscal risk reports—is that inflation may undershoot expectations, thereby raising real interest rates.<sup>8</sup>

To summarize the evidence, the most important macro-fiscal risk factors are economic growth and stock-flow adjustments. Existing scenario analyses generally capture these risks well but could pay more attention to surprises in the GDP deflator.<sup>9</sup> Contingent liabilities have also been important. It is noteworthy that these risks also tend to move together. For example, the decomposition of unexpected jumps

<sup>7</sup>Fiscal risk statements have been increasingly used by a wide range of countries, in several cases with capacity development support by IMF staff. Fully fledged fiscal stress tests that explore the effect of more extreme macro-fiscal shocks, as conducted in *The Netherlands* and the *United Kingdom*, are less common. Periodic stress tests can also help inform fiscal policy by demonstrating whether debt paths remain consistent with longer-term fiscal objectives. For example, an IMF COVID-19 fiscal stress test module was used in nine countries, including *Mozambique* and *Uganda*, over the past year to prepare scenarios for different variations in the stringency and length of lockdowns during the pandemic and to identify risk mitigation strategies.

<sup>8</sup>Lower-than-expected inflation in the form of a lower GDP deflator reduces nominal GDP and raises the debt-to-GDP ratio. In the decomposition of debt changes, it is part of the term “contribution from real interest rates” (Online Annex 2.3).

<sup>9</sup>These results complement findings in previous IMF work regarding the role of growth forecast errors, commodity prices, and outlier countries (IMF 2021a, 2021c).

in debt during the five years after the global financial crisis shows a high correlation (in the range of 0.6 to 0.8) between the contributions of surprises in primary balances and stock-flow adjustment as well as between the contributions of surprises in real interest rates and real exchange rates. These results imply that it is important for scenarios to consider that—as the saying goes—*when it rains, it pours*.

### Mitigating and Managing Fiscal Risks

Identifying and measuring specific fiscal risks are key inputs for—and complement—debt sustainability and scenario analyses. This is especially important at the current juncture: across the Group of Twenty and beyond, various loan, equity, and guarantee packages have been supporting businesses along with quasi-fiscal measures provided through state-owned enterprises. While government-guaranteed loans have supported much-needed access to credit for firms during the pandemic, the loans have also created large, macroeconomically significant contingent liabilities for some countries (Figure 1.11). The size of these contingent liabilities could fall if governments close these facilities and firms pay down loans, but they could also rise rapidly again if the pandemic deepens or if other crises unfold.

It is good practice to account for the *expected* costs of contingent liabilities in medium-term budget plans and to prepare fiscal buffers to accommodate residual, or *unexpected*, costs:

- Budgeting for expected costs of contingent liabilities in medium-term fiscal plans can help ensure that resources are available to cover potential costs. Budgeting also makes the fiscal effects of these interventions explicit when the decision is made to undertake them and helps clarify trade-offs across different policy instruments.<sup>10</sup>

<sup>10</sup>Budgeting for expected costs—that is, estimated cash flows based on the probability at a given time of the contingent liability materializing—is in line with guidance from international accounting standards and statistical principles that state the costs should be expensed or provisioned for where they are highly likely to occur (IMF 2014; European Union 2019). Expected costs can be budgeted for on an annual cash flow basis or on a net-present-value basis in the year that the fiscal support is provided, as is done, for example, in *Colombia*, *New Zealand*, and the *United States* (Saxena 2017). This method can be complemented by a fair-value approach to measure program costs at market prices (or an approximation when market prices are not available) to capture the risk of default, recovery rates, and the price of risk (Lucas 2014; Hong and Lucas 2021).

- The potential for additional, unexpected costs calls for building buffers when setting targets, for instance, for deficits or debt (IMF 2016; Eyraud and others 2018). A probabilistic approach that considers the historical realization of fiscal risks can be used to estimate debt ceilings (IMF 2016).

Well-designed risk mitigation strategies can reduce risks—or limit fiscal costs if they materialize—and thereby support the credibility of fiscal frameworks. Governments can limit their exposure, for example, by placing limits on loan sizes and maturities, restricting eligibility under credit support schemes (for example, *Ukraine's* COVID-19 portfolio guarantees were restricted to enterprises above a certain risk class), or providing partial guarantees to limit moral hazard (for example, *Spain's* COVID-19 guarantees limited guarantee coverage to 60–80 percent of a loan, depending on firm size and loan purpose). State-owned enterprises or private companies that receive support may be asked, for example, to restructure, adopt more efficient methods of production, or strengthen their governance. Overall, decisions on whether to mitigate or assume risks need to balance the costs and benefits, which depend on the government's fiscal position, the strength of its institutions, and the state of the economy. During crises, assuming fiscal risks may well bring net benefits. Once the recovery is under way, however, guarantees and other exposures should not be allowed to outlive their initial motivation.

### Fiscal Frameworks, Sustainability, and Credibility of Fiscal Plans

Fiscal frameworks are an important tool to support fiscal sustainability and make policies more predictable. Fiscal frameworks also guide political deliberations toward convergence on agreed-upon fiscal objectives, including the acceptable level of debt. Fiscal frameworks comprise long-term fiscal targets, fiscal rules, and fiscal institutions, as well as budget procedures. While numerical rules often operate in tandem with procedural rules (such as setting medium-term expenditure ceilings that are consistent with fiscal targets), some countries rely on procedural rules to control deficits and debt. Such procedural rules focus on institutional designs that give space to policymakers for judgment but provide incentives for fiscal responsibility.

This can work well in countries with high fiscal transparency and where there is a constituency for fiscal sustainability. For example, fiscal responsibility legislation in *Australia* and *New Zealand* requires the government to commit to a medium-term fiscal strategy and regularly report against it.

The design of fiscal frameworks should achieve three goals: (1) sustainability of public finances; (2) stabilization of the economy through countercyclical fiscal policy, when appropriate; and (3) for fiscal rules in particular, simplicity, to facilitate communication and accountability to the public (Kopits and Symansky 1998). Further desirable features include resilience, ease of monitoring, operational guidance, and enforcement.

Satisfying all three goals simultaneously is not easy; it can be a “trilemma,” as Debrun and Jonung (2018) note. For example, long-term fiscal targets (anchors) that are based on simple indicators, such as the debt-to-GDP ratio, may take a narrow view of sustainability. Fiscal rules can be designed to reduce the procyclicality of fiscal policy (Bova, Carcenac, and Guerguil 2014; Eyraud and others 2018), but some of these rules are harder to monitor (for example, structural balance rules) and others may leave too much room to increase debt (for example, commodity price rule or simple expenditure rules). Simple numerical rules can be rigid (Blanchard, Leandro, and Zettelmeyer 2021), whereas procedural rules provide more flexibility but may be harder to communicate and monitor without numerical targets, particularly in the absence of sound institutions (Martin, Pisani-Ferry, and Ragot 2021).

Although these issues predate the COVID-19 pandemic, the unprecedented size of the fiscal response to the crisis has led many countries to deviate from precrisis numerical objectives. Nearly 50 countries have activated escape clauses in their fiscal rules or suspended their fiscal rule since the onset of the pandemic. More than half of these are European Union or West African Economic and Monetary Union members covered by activation of escape clauses at the supranational level. At the national level, most countries activated escape clauses, although some opted to suspend their fiscal rules because of high uncertainty (for example, *Colombia*, *Ghana*, and *Peru*). Countries are now considering whether to converge back toward old targets or reset them, perhaps in the context of a redesigned fiscal framework.

### Specifying and Pursuing the Long-Term Fiscal Target

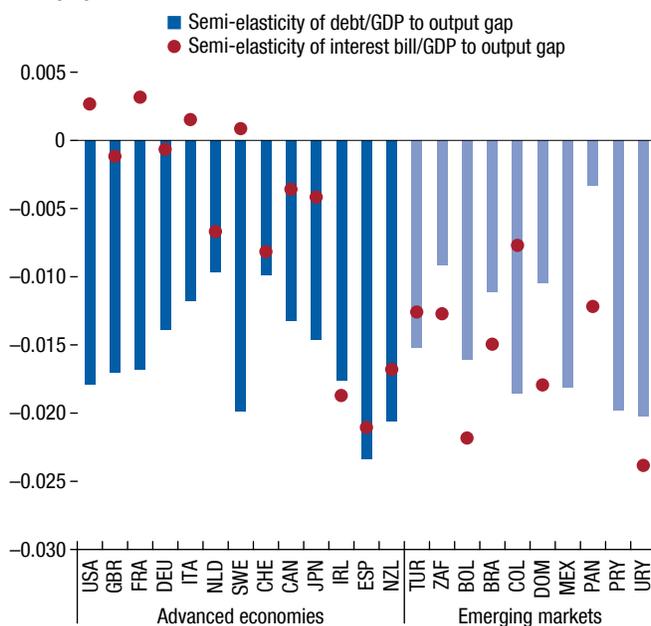
Selecting a long-term fiscal target is an important step when designing a fiscal framework. Commonly used anchors are debt or the budget balance, but new proposals have included the interest bill and the net worth of the public sector. Existing anchors have advantages and drawbacks: balancing the trade-offs can present a trilemma, as discussed. The debt-to-GDP ratio is a simple, easy-to-monitor statistic and has predictive power for crises (Moreno Badia and others 2020). However, the debt ratio may not capture well the cost of debt if interest rates trend downward, as has been the case since the global financial crisis. Also, where the debt anchor is combined with a deficit limit—as in the European Union’s Stability and Growth Pact—the long-term stable debt ratio consistent with a given deficit limit will be higher if the long-term economic growth rate has declined (Buti and Gaspar 2021).

Given that interest rates are expected to remain low for some time, it has been argued that pre-COVID-19 debt anchors may now be too conservative and that the interest bill may be a good anchor (Furman and Summers 2020). Assessments of fiscal sustainability, including by IMF staff, have long been based on a wide range of indicators, including some involving the interest bill—as a share of GDP and as a share of fiscal revenues (IMF 2003). Deficit targets also allow more space for primary spending or tax cuts if the interest bill declines. Greater focus on the interest bill has advantages, especially for the very few countries, such as the *United States*, where rollover risk is very low. For the majority of countries that need to manage rollover risks, however, the interest bill can increase quickly during debt crises; the stock of debt is thus more informative if a single indicator needs to be chosen for a fiscal anchor (although information on the interest bill, debt maturity, gross financing needs, and so on is also valuable). In addition, the interest-bill-to-GDP ratio is more cyclical than the debt-to-GDP ratio in countries where interest rates tend to rise when GDP falls—as is often the case in emerging markets (Figure 2.7). A binding interest bill ceiling would then force even more fiscal adjustment in a recession.

Public sector balance sheet measures may also be considered to help anchor public finances. Their main advantage is to consider the assets that governments and public corporations hold, such as financial assets, public buildings and infrastructure, land, and natural

### Figure 2.7. Comparison of Cyclicity of the Debt-to-GDP Ratio and Interest-Bill-to-GDP Ratio

The interest-bill-to-GDP ratio is more cyclical than the debt-to-GDP ratio in countries where interest rates tend to rise when GDP falls, such as in emerging markets.



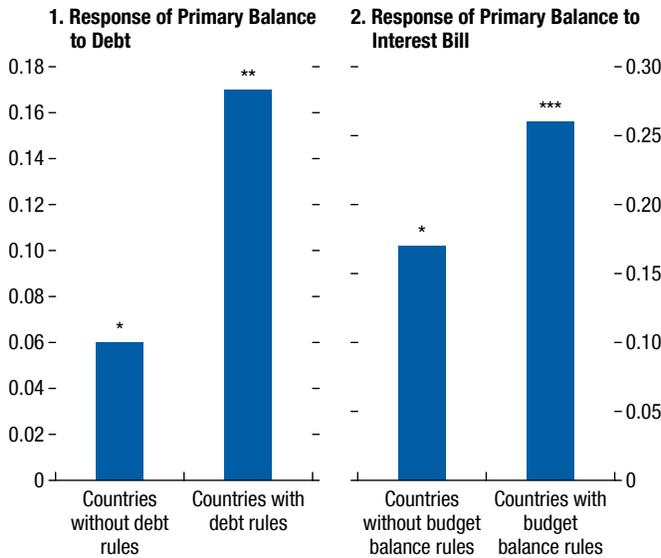
Sources: Mauro and Zhou 2021; and IMF staff calculations.

Note: Because the semi-elasticities are negative, a lower (more negative) value means a stronger sensitivity to the output gap. The semi-elasticity estimates show how the yearly percentage changes in the interest-bill-to-GDP ratio and debt-to-GDP ratio are associated with the economic cycle (a gap measure computed using the Hamilton filter). The semi-elasticities are estimated country-by-country over 1985–2019. Data labels use International Organization for Standardization (ISO) country codes.

resources (October 2018 *Fiscal Monitor*; Hughes and others 2019). The fiscal framework of *New Zealand*, for example, includes a long-term objective for net worth (the difference between assets and liabilities), in conjunction with a traditional net debt anchor. This combination intends to protect public investment, which tends to be cut during recessions as governments seek to meet their fiscal targets (Ardanaz and others 2021; Cusato Novelli and Barcia 2021). In this regard, it shares some characteristics with the golden rule, which targets the fiscal balance excluding public investment. Measuring the net worth of the public sector requires sound valuation of public assets, and high-quality, transparent, and credible fiscal accounting—as does a golden rule—because ringfencing some forms of spending creates incentives to misclassify current spending as protected investment expenditure.

**Figure 2.8. Government Reaction to Increases in Debt and in the Interest Bill**

Governments tend to react to increases in debt and in the interest bill by tightening the primary balance.



Source: David, Goncalves, and Perrelli (forthcoming).  
 Note: This figure is based on panel estimation of fiscal reaction function for 55 countries over 1970–2018.  
 \* $p < 0.10$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$ .

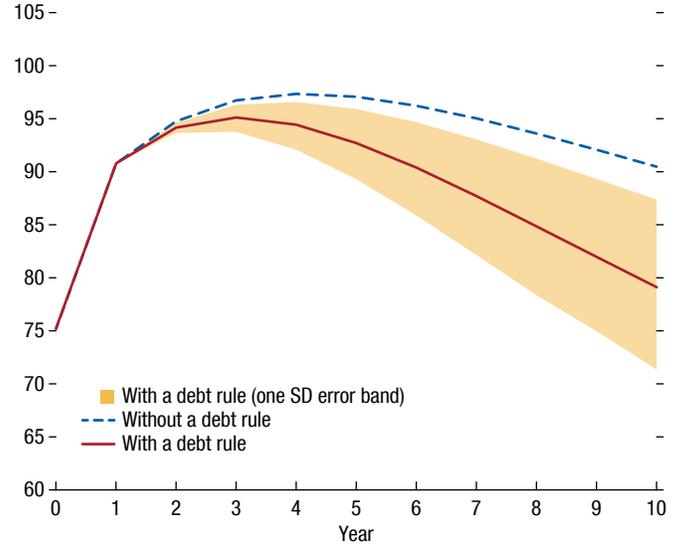
**Fiscal Rules and Fiscal Prudence**

Although fiscal frameworks can be further improved, the available empirical evidence suggests that existing fiscal rules have contributed to lower deficits (Bergman, Hutchison, and Hougaard Jensen 2016). Debrun and others (2008) find that, in 1990–2005, fiscal rules were associated with higher primary balances and structural primary balances, controlling for the potential endogeneity of adopting fiscal rules. Caselli, Stoehlker, and Wingender (2020) find that, for countries that would have had large deficits in the absence of a fiscal rule, having adopted a fiscal rule improved the primary balance.

An empirical analysis (David, Gonçalves, and Perrelli, forthcoming) also shows that fiscal authorities constrained by debt rules or deficits rules are more likely to take measures that prevent the debt-to-GDP ratio from increasing without limit. The analysis tests whether past increases in debt lead to higher primary balances (building on Bohn 1998; Mendoza and Ostry 2008; and Mauro and others 2015) and whether past increases in the interest bill

**Figure 2.9. Fiscal Prudence after an Increase in Debt**  
 (Debt, percent of GDP)

Countries that followed a debt rule typically managed to reverse a jump in debt faster than others.



Source: David, Goncalves, and Perrelli (forthcoming).  
 Note: This figure is based on panel estimation of fiscal reaction function linking primary balance to past debt for 55 countries over 1970–2018. This is an illustrative simulation using coefficients from the panel estimation. The exercise assumes an initial debt of 75 percent of GDP, coupled with a shock that sends debt 15 percentage points higher in a single year (similar to the variation witnessed from 2019 to 2020 in advanced economies).

led to higher primary balances. The estimates show the following:

- On average, governments react to increases in debt and in the interest bill (the so-called fiscal reaction function) by tightening the primary balance (Figure 2.8), such that debt ratios can be expected to decline and stabilize after a shock to debt or to debt service.
- In countries where debt rules are in place, jumps in debt lead to an even stronger tightening of primary balances. Countries that have followed a debt rule have typically managed to reverse a jump in debt amounting to 15 percent of GDP in about 10 years—in the absence of new shocks—significantly faster than other countries (Figure 2.9).<sup>11</sup>

<sup>11</sup>It is possible that prudent countries are also those that follow fiscal rules. In this case, there could be some reverse causality, such that the effect observed cannot be attributed with certainty to the result of adopting a fiscal rule. However, it is worth noting that countries adopting rules do not look different from those that do not (see also Debrun and others 2008). For instance, during the wave of adoption of fiscal rules in the 1990s, the average debt-to-GDP ratio of adopters was 60.5 percent, whereas for the nonadopters it was 62 percent.

- Governments that follow budget balance rules raise the primary surplus more forcefully in response to increases in the interest bill. This intended effect (the primary balance needs to offset the interest bill when the overall balance is constrained by a ceiling) can contribute significantly to debt stability.

### Ensuring Flexibility

A potential drawback of fiscal rules is that governments may find that they are constrained in difficult times, especially if they did not create enough space in good times. The empirical evidence indicates that fiscal rules that do not include flexibility in their design tend to make fiscal policy more procyclical, especially for public investment (Fatás and Mihov 2007; Guerguil, Mandon, and Tapsoba 2017). However, when flexibility is allowed, fiscal rules are not associated with more procyclicality (Bova, Carcenac, and Guerguil 2014; Gootjes and de Haan 2020).

To improve flexibility, fiscal rules have often focused on the cyclically adjusted fiscal balance or the structural fiscal balance (Fedelino, Ivanova, and Horton 2009; Bornhorst and others 2011). This additional complexity, however, makes monitoring and enforcement more challenging. For example, real-time assessment of the cyclical position of the economy is difficult (Orphanides and van Norden 2002).

Expenditure rules are easier to monitor and permit countercyclical fiscal policy by constraining spending during booms (Ayuso-i-Casal 2012; Belu Manescu and Bova 2020). Given that a large part of the government revenue stream is sensitive to economic fluctuations—whereas most expenditure is not—expenditure rules also foster countercyclical fiscal policy while protecting important spending during downturns. Basic expenditure rules do not accommodate changes in the size of the public sector, although this can be addressed by recalibrating the rules when revenues are permanently increased. More sophisticated expenditure rules also allow spending to grow above the limit if higher spending is matched by increases in discretionary revenues—although this also makes the rules more complex.

Another proposal is to automatically suspend the fiscal rule when the monetary policy rate reaches its effective lower bound (Portes and Wren-Lewis 2015). Although central banks can also take unconventional measures, such as asset purchases, the boost these measures provide may be uncertain, whereas fiscal policy is especially

potent under such conditions. Providing incentives to increase deficits when monetary policy is constrained can mitigate the risks of protracted slowdowns that limited monetary policy space creates (Schmidt 2017). Although this approach is interesting for countries where the policy rate is typically above its effective lower bound, for many advanced economies, the policy rate has been close to the lower bound for so long that it is not clear when such a fiscal rule suspension would end.

Escape clauses, which allow for deviations from the rule in times of need, are important to improve flexibility. To protect credibility of the framework, escape clauses should be well specified and activated only for events beyond the government's control, such as severe recessions, natural disasters, or pandemics (Eyraud and others 2018). In 2020, many countries activated escape clauses to accommodate a drop in revenues and the increase in health care and social spending (see Box 2.2). However, determining when and how to return to the rule after an escape clause has been activated is difficult. Some rules require offsetting accumulated deviations, but this may not be economically or politically feasible.

### Returning to the Rule?

Many countries that have suspended their rules during the pandemic are thus considering recalibrating them to accommodate higher debt levels and provide more flexibility after the crisis. On one hand, revisions of rules can improve the credibility of the framework because adhering to an unrealistic target increases the likelihood that it will be violated in the future. On the other hand, revising the target may signal weaker commitment to fiscal sustainability. Drazen and Masson (1994), in an analysis of a similar trade-off occurring with monetary policy, show that the credibility of a target is low if the effort made to achieve the target makes it harder to comply with it in the future. This may well apply where fiscal consolidation could hurt the growth potential of the economy.

Whether and how to return to an old rule or redesign or recalibrate it depends on country-specific circumstances, but some general principles can be spelled out:

- The benefits of recalibrating a fiscal rule are higher if converging back to an old rule would require excessive fiscal consolidation on the grounds of macroeconomic stabilization or distributional

effects, making such a path not credible. In some cases, introducing fiscal responsibility laws or fiscal pacts seeking to build consensus on revenue mobilization or adjustment paths could be needed prior to recalibrating or even adopting new rules.

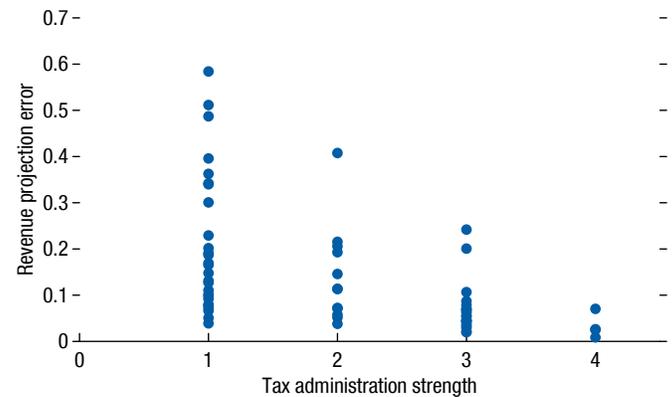
- An intermediate solution, for countries in which returning to the old rule is feasible but only in the medium term, would be a transition regime with a less ambitious interim target that is nonetheless consistent with eventual convergence to the old rule.
- The post-COVID-19 period may provide an opportune time to redesign or recalibrate a rule that was in need of updating even before the pandemic.
- However, revamping a fiscal framework may not be advisable where it was implemented or reformed too recently because the credibility of frameworks that are regularly changed is weak.
- A redesigned framework should include realistic goals agreed upon by a broad coalition of players, from government to political parties and civil society.

The limited available experience suggests that the context and communication around the decision to revise a fiscal rule ceiling is key to its impact on credibility. For example, when *Israel* revised its deficit ceiling for 2013/14, Fitch reaffirmed *Israel's* credit rating at “A” because the commitment to consolidation was not in question—even though this revision occurred for the second year in a row. When *Mongolia* revised its deficit thresholds in 2015–17, the revisions raised market concerns, although some credibility was afforded by program negotiations with the IMF in 2017.

Communicating well to the public the intentions of a revision of the fiscal framework is also paramount to its success. When fiscal rules were suspended in 2020 during the pandemic, the media usually emphasized the importance of providing space for health care spending, but in many emerging markets and frontier economies, respecting the fiscal framework and maintaining creditworthiness were also a concern (Box 2.2). The media reacted more positively to the suspension of fiscal rules in countries with high fiscal transparency and more established access to financial markets. As governments seek to restore fiscal sustainability, an active and comprehensive communication strategy can help underscore the benefits of reform to the public and explain how the most vulnerable are protected (Stankova 2019).

### Figure 2.10. Revenue Projection Errors and Tax Administration Strength

The predictability of government revenues is related to the effectiveness of tax administration.



Source: IMF staff calculations.

Note: This figure is based on revenue projections and outturns in the World Economic Outlook database and the results of capacity development work in 30 low-income developing countries, 31 emerging markets, and 2 advanced economies assessing strengths and weaknesses of tax administrations using the Tax Administration Diagnostic Assessment Tool.

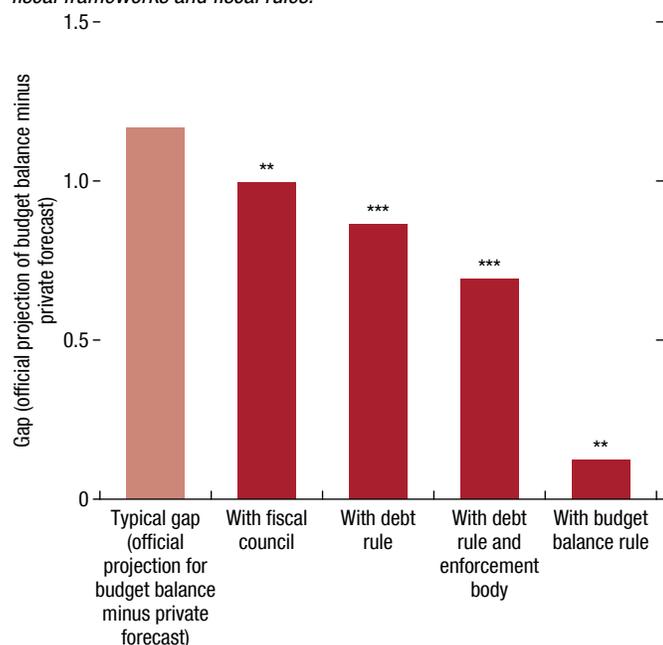
### Strengthening Underlying Fiscal Institutions

Strengthening underlying fiscal institutions and institutional capacity can help improve the credibility of fiscal frameworks.

- Because fiscal plans need to be based on transparent and realistic macroeconomic forecasts, subjecting economic assumptions to independent review can help buttress credibility. Some advanced economies (for example, *Austria* and the *United Kingdom*) have delegated responsibility for the preparation of macroeconomic forecasts underpinning the budget projections to independent institutions, such as fiscal councils. Evidence suggests that well-designed fiscal councils are associated with stronger fiscal performance and more accurate and less biased forecasts (Debrun and Kinda 2014).
- Comprehensive medium-term budgets that reflect all planned fiscal activities reduce risks of hidden deficits and help ensure plans are consistent with objectives.
- Effective financial controls and tax administration ensure governments can implement policies in line with approved plans. The predictability of revenues is positively correlated with a tax administration's effectiveness and the quality of governance (Figure 2.10). However, requiring administrations to implement tax and spending reforms during or

**Figure 2.11. Effect of a Fiscal Framework on the Credibility of Official Projections**

The credibility of official projections is increased by adhering to strong fiscal frameworks and fiscal rules.



Sources: Bloomberg Finance L.P., Consensus Forecast; and IMF, Fiscal Rules database.

Note: Bars plot the expected gap, defined as the official projection for budget balance minus private projections for the budget balance. The typical gap is positive because the official projection is usually more optimistic than the private sector's. A lower gap indicates more credibility. Bars are derived in difference from the typical gap, using regression coefficients presented in Online Annex 2.4. Regressions are based on 423 observations, covering 23 advanced economies and 9 emerging markets over 1997–2019. See also End and Hong (forthcoming). \*\* and \*\*\* are for coefficients statistically significant at the 5 and 1 percent levels, respectively.

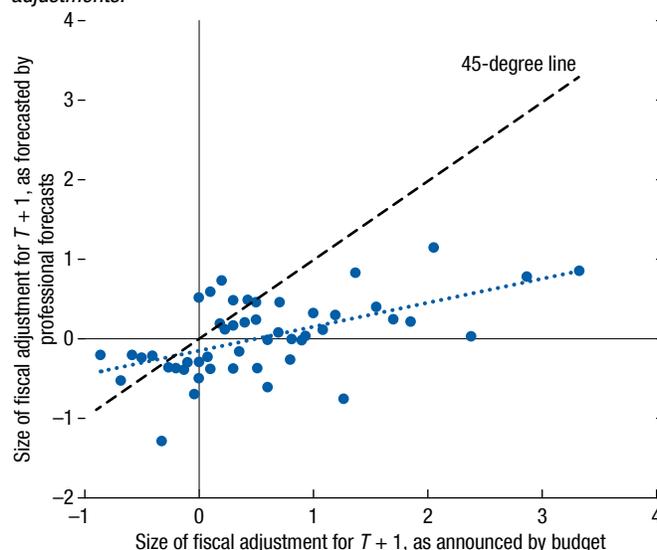
in the aftermath of a crisis while minimizing adverse effects on the private sector is challenging.

- Transparent reporting of macroeconomic and fiscal projections, their underlying assumptions and deviations from them, in line with international standards, such as the IMF Fiscal Transparency Code (IMF 2019), is critical for underpinning market confidence and access to finance. Disclosing risks around these forecasts, for example, in fiscal risk statements, can also raise awareness of those risks and, along with their regular monitoring and assessment, encourage better management.

For low-income developing countries and fragile states, further developing core public financial management systems, such as sound annual budget processes, medium-term forecasts, financial controls, and reporting mechanisms will be crucial. In advanced economies and emerging markets, better-designed medium-term

**Figure 2.12. Credibility of Fiscal Adjustment**  
(Percent of GDP)

Private sector forecasts heavily discount official projections for fiscal adjustments.



Sources: Bloomberg Finance L.P., Consensus Forecast; and IMF, Fiscal Rules database.

Note: Binned scatter plots for 423 observations covering 23 advanced economies and 9 emerging markets over 1995 to 2019. The slope coefficient is 0.23, controlling for various macroeconomic factors and year and country fixed effects (see also Online Annex 2.4).

frameworks, more comprehensive budgets, and better risk analysis and management can support more predictable and credible fiscal policy.

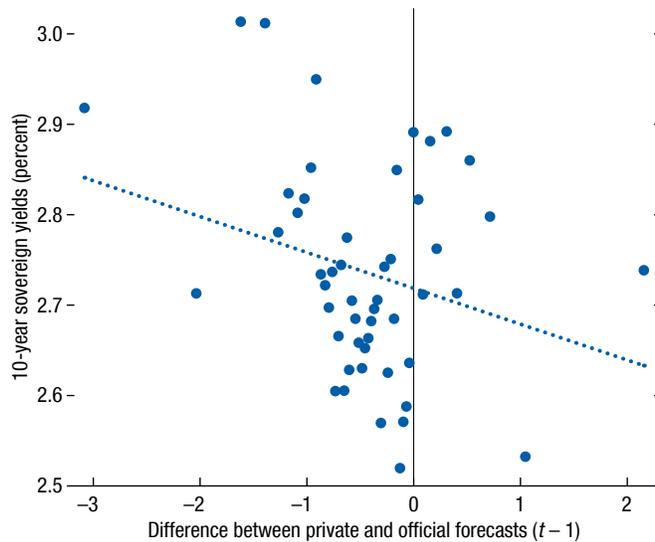
### Improving the Predictability and Credibility of Fiscal Plans

Sound fiscal frameworks can enhance credibility, market access, and ultimately fiscal space. An analysis of why private forecasts for the deficit differ from official projections shows how fiscal frameworks can improve credibility (End and Hong, forthcoming). If a government budget announcement is credible, private expectations about the budget balance should be centered around the government's projections, and disagreement among forecasters should be minimal.<sup>12</sup> On average, governments project significantly lower fiscal deficits than does the private sector for both the

<sup>12</sup>This dimension of credibility is akin to the degree of anchoring of private expectations around the inflation target, which is used in analyses of the monetary policy (End 2020). A similar metric of disagreement between forecasters is used in work on monetary policy to measure the anchoring of expectations (see, for example, Coibion and Gorodnichenko 2015).

**Figure 2.13. Credibility of Budget and Borrowing Rates**

When private forecasts are more pessimistic than official projections, market indicators of creditworthiness and credit ratings deteriorate.



Sources: Bloomberg Finance L.P.; and IMF staff estimates.

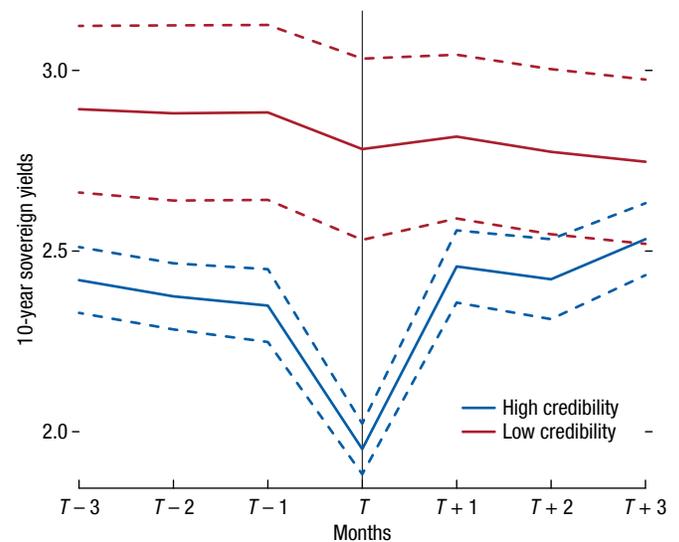
Note: Bin scatter plots are based on 3,071 observations covering 34 countries from 2001 to 2019. The bin scatter plot groups the observations into 50 equal bins. Robust regressions include a range of controls. See Online Annex 2.4.

current calendar year and the next fiscal year. The analysis also shows the following:

- Strong fiscal frameworks and fiscal rules increase the credibility of official projections (Figure 2.11). Private forecasts of the budget balance are closer to official projections in countries with debt rules or deficit rules, and where fiscal frameworks include a fiscal council or where the fiscal rule is monitored by an independent agency.
- Budget balance rules tend to anchor private sector expectations that the budget balance will be close to the rule's deficit ceiling. Caselli and Wingender (2021) find that the adoption of EU fiscal rules led to deficits converging toward the limit of 3 percent of GDP embedded in the Stability and Growth Pact. Professional forecasters seem to internalize this. In the European Union, uncertainty on the budget deficit widens when budgets deviate from the -3 percent of GDP limit (Online Annex 2.4).
- Having achieved deficits close to announcements in the past helps. The private sector is more pessimistic and unsure about future deficits after official projections have made large forecast errors. Downward revisions to fiscal balance projections by official forecasts also increase the gap between official and private forecasts by making private forecasters more pessimistic (Online Annex 2.4).

**Figure 2.14. Interest Rates around Budget Announcements and Credibility of Announcements**

Budget announcements lead to a temporary fall in interest rates in countries with high credibility.



Sources: Bloomberg Finance L.P.; and IMF staff estimates.

Note: Credibility of announcements is measured using the difference between official projections for the balance and private projections. High credibility is defined as credibility above the 75th percentile; low credibility is defined as credibility below the 25th percentile. This figure is based on 23 advanced economies and 9 emerging markets from 2001 to 2019, excluding announcements made during the global financial crisis and in years of sovereign debt crisis. Error bands represent the 1 SD confidence interval.

- Announcements of larger adjustments do not necessarily help budget credibility. Although private sector expectations follow official adjustments to some extent, they discount them. On average, they give credit for only one-fourth of the adjustment planned for the next year (Figure 2.12).

Credible official announcements are beneficial in terms of lower borrowing costs. Market indicators of creditworthiness, such as spreads on credit default swaps or sovereign yields, as well as credit ratings, deteriorate when private forecasts are more pessimistic than official projections (Figure 2.13; Online Annex 2.4). If private forecasts of the deficit are more pessimistic than official projections by 2 percent of GDP, 10-year sovereign yields increase by 6 basis points. Budget announcements also lead to a fall in interest rates around the time of announcement in countries with high credibility, whereas there is no visible effect in countries with low credibility (Figure 2.14). The difference can be as much as 40 basis points in the month of announcement, although the gap closes subsequently. This is in addition to the structural gains of higher budget credibility on

market borrowing costs, as presented in Figure 2.13. Given that credibility is slow and difficult to acquire but fast to lose, governments should strive to preserve it to avoid periods of adverse market conditions.

## Conclusion and Policy Recommendations

Although fiscal support during the COVID-19 crisis continues to be indispensable in most places, buffers have dwindled. In countries where fiscal space remains, prolonging fiscal support to fight the health crisis and to bolster the recovery is the correct choice; but in many other countries, governments face a stark trade-off between additional support to their people and preserving some space to address further possible emergencies.

This trade-off can be made less painful by strengthening the credibility of public finances. Experience, and the evidence provided in this chapter, show that market access is more favorable when the private sector trusts the government's commitment to fiscal sustainability, as this increases creditworthiness. For countries with limited market access, credibility of the fiscal strategy is also important to achieve a more predictable outlook and thus to foster private investment and macroeconomic stability. Fiscal frameworks provide the set of rules and institutions that allow countries to signal such commitments and to comply with them.

The appropriate design of fiscal frameworks, including the choice and calibration of the long-term fiscal target, is country specific and may have to change with circumstances. The persistent decline in global interest rates seen since the global financial crisis may have led to an increase in debt carrying capacity, so that debt anchors that predate the COVID-19 pandemic might be too conservative. This provides breathing room, as returning to pre-COVID-19 debt levels would take a long time. Easy financing conditions may continue for

a few years, but an increase in interest rates cannot be ruled out, with the potential to worsen fiscal accounts and increase the risk of debt crisis.

Fiscal frameworks centered on the primary goal of promoting sustainability help improve access to finance. More flexibility could be embedded into fiscal frameworks to support the exit from the crisis—for example, by adopting expenditure rules instead of budget balance rules. Objectives that go beyond the debt-to-GDP ratio—such as a net worth target for the public sector or an anchor based on the interest rate bill—could also be given more weight in fiscal frameworks, especially in countries where rollover risks are not a concern and transparency standards are high. Countries that have suspended their fiscal rule may need to consider redesigning or recalibrating their pre-COVID-19 rules. The benefits of doing so depend on how constraining the existing rule is and on the credibility cost of reforming the fiscal framework. The limited available experience suggests that a well-reasoned recalibration may be consistent with maintaining credibility in cases where outdated targets have become clearly unattainable and economically counterproductive.

Clear communication of government priorities, backed by fiscal transparency and strategies that strengthen commitment, is likely to help transition to new objectives. For example, activating escape clauses during the pandemic has been less controversial in countries that scored high in fiscal transparency. Strategies to signal commitment to future deficit reduction include strengthening fiscal frameworks to improve compliance with fiscal rules, undertaking structural fiscal reforms, entering into an IMF-supported program, or legislating future tax or spending changes in advance. Governments should explore these avenues to signal that they are committed to fiscal sustainability.

**Box 2.1. Evaluating How Well Scenarios in Debt Sustainability Analyses Capture Key Fiscal Risks**

A systematic analysis of the scenarios included in the IMF debt sustainability analyses and the European Commission debt sustainability analyses helps assess whether past scenario exercises appropriately captured the key fiscal risks. The analysis explores to what extent unexpected jumps in debt because of specific drivers (for example, growth underperformance, fiscal policy slippages) had been anticipated by their corresponding standardized scenarios. It covers 36 advanced economies, 88 emerging markets, and 58 low-income developing countries. The investigation is complemented by a review of fiscal risk analyses conducted by selected national fiscal institutions.

- The results (see Figure 2.1.1) suggest that unanticipated jumps in debt as a result of surprises in real economic growth are well captured by standardized scenarios in advanced economies and emerging markets, but less so in low-income developing countries. On one hand, in about 80 percent of the IMF’s debt sustainability analyses for market access countries (which essentially include advanced economies and emerging markets), growth scenarios envisioned short-term debt increases that turned out to be larger than the actual projection errors because of growth shocks. On the other hand, the temporary growth scenarios in the IMF’s debt sustainability analyses for low-income developing countries were able to anticipate short-term debt increases in only one-third

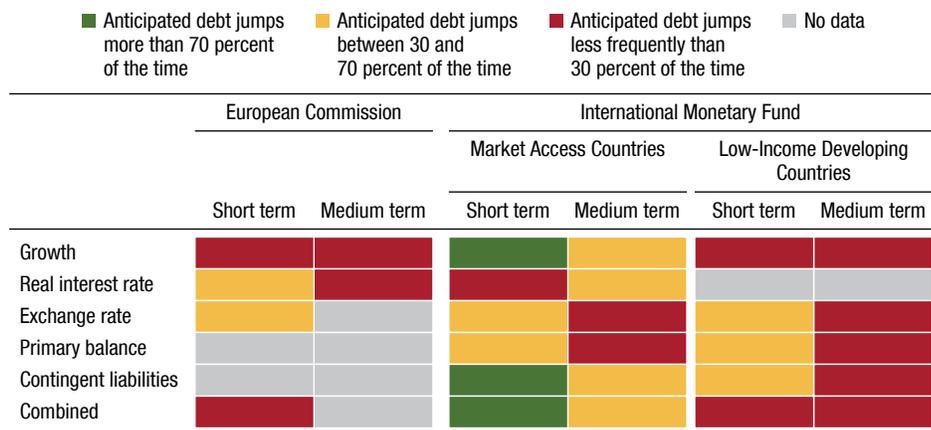
of the episodes. In all country groups, the capacity of growth scenarios to anticipate adverse debt dynamics is weaker over the medium term. Likewise, risks emerging from exchange rate depreciation, primary balance slippages, and contingent liabilities were better captured at the short-term horizon than at a medium-term horizon.

- Scenarios seem to have had the greatest difficulty flagging the risks of higher-than-expected real interest rates. During the period considered, higher-than-expected real interest rates were driven by inflation undershooting expectations.<sup>1</sup> Such undershoots occurred in a wide range of countries, from resource-rich economies (for example, *Equatorial Guinea* in 2015), to large emerging markets and advanced economies (for example, *China* and *Canada* in 2014, *Iceland* in 2016). Despite the macroeconomic relevance of this factor, fiscal risk analyses conducted by national fiscal institutions (for example, in *The Netherlands*, *New Zealand*, the *United Kingdom*, and the *United States*) have not included the risk that inflation could undershoot expectations.

<sup>1</sup>The analysis of the effectiveness of the real interest rate scenarios is based on 197 (139) IMF debt sustainability analyses for market access countries and 56 (37) European Commission debt sustainability analyses over the short term (medium term).

**Figure 2.1.1. Capacity of Debt Sustainability Scenarios to Identify Fiscal Risks**

*Some shocks were well anticipated by scenario analysis; others, less so.*



Sources: Debt sustainability analysis scenarios in European Commission 2012 and 2018 *Fiscal Sustainability Reports* (FSR) and 2017 *Debt Sustainability Monitor* (data published in the 2015 FSR were insufficient to include in the analysis); and IMF country reports.

Note: “Short term” corresponds to a time horizon of 1–2 years. “Medium term” corresponds to a time horizon of 3–5 years. Market access countries are those with significant access to international capital markets, rather than being largely dependent on concessional external financing (as is the case for low-income developing countries). Market access countries are essentially advanced economies and emerging markets. When a cell represents multiple scenarios (for example, the European Commission standard scenario and enhanced scenario), the flag is allocated according to the average performance. See Online Annex 2.3 for details.

### Box 2.2. Media Coverage of Suspension of Fiscal Rules

This box investigates how newspapers perceived the suspension of fiscal rules in 2020 in 36 countries, including cases where escape clauses were activated at the supranational level (European Union and West African Economic and Monetary Union). It uses news articles in the country’s official language referring to the escape clause in the two weeks before and after its activation. The text analysis covers 1,364 articles and follows an approach used in research on media perception of economic policies (Fraiberger 2016; Shapiro, Sudhof, and Wilson 2020; Shapiro and Wilson 2021).

Media coverage underscored the exceptional circumstances that led to activating escape clauses (relevant keywords used included “pandemic”, “COVID”, and “crisis”) and the central role of the government in addressing it (“fiscal”, “deficit”, “health”, “support”, “measure”, and “budget”) (Figure 2.2.1, panel 1). More than half of the news articles acknowledged the effect on debt, with the share reaching 73 percent among advanced economies. While “corona bonds”—securities proposed to be jointly issued by an EU institution—were discussed in 7 percent of the news articles in European advanced economies, “market access” was more prominent in emerging markets and low-income developing countries. “Bonds” and “investors” were mentioned in 23 percent and 11 percent of the articles of emerging markets, respectively. The name of a credit rating agency was between 7 and 10 times more likely to be mentioned for low-income developing countries and emerging markets, respectively, than for advanced economies. Last, the lower the income group, the more attention was paid to issues of credibility, the medium term, and debt sustainability (Figure 2.2.1, panel 2).

Although reporting was often factual, and thus neutral in tone, there were important differences. On a scale of –1 (most negative) to +1 (most positive), the average and median score across countries was about 0. Yet, differences existed across countries. Perception was especially positive in *Honduras* and *Peru*. More broadly, perception tended to be more positive in countries with stronger standards of transparency (Figure 2.2.1, panel 3), highlighting the importance of transparent, timely, and comprehensive reporting of fiscal information, as well as extensive oversight by audit institutions, parliaments, and civil societies to build credibility and trust among the public. This result is in line with the extensive literature on the

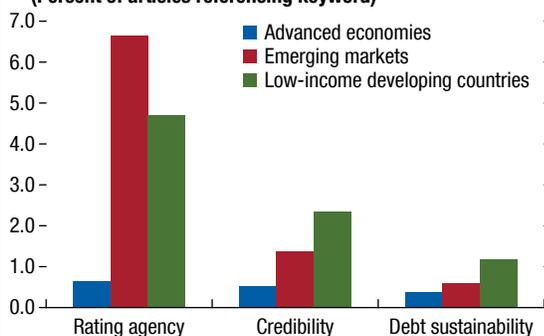
**Figure 2.2.1. Media Coverage of the Escape Clause**

Media coverage of escape clause activation emphasized exceptional circumstances, was particularly concerned with market access in emerging markets and low-income developing countries, and was more positive in more transparent countries.

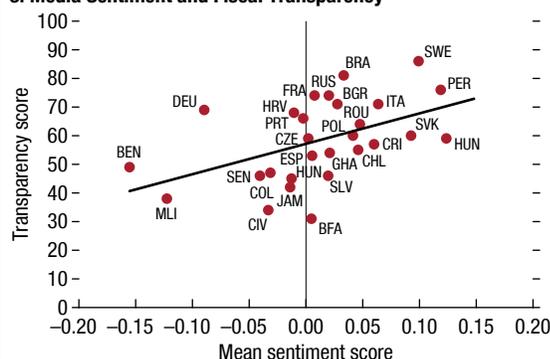
#### 1. Media Coverage in Low-Income Developing Countries



#### 2. Mentions of Relevant Keywords in Media Coverage (Percent of articles referencing keyword)



#### 3. Media Sentiment and Fiscal Transparency



Sources: Factiva; Open Budget Survey 2019; Trendkite; and IMF staff calculations.

Note: The sample includes 13 advanced economies, 15 emerging markets, and 8 low-income developing countries, with an average of 38 articles per country. Data labels in panel 3 use International Organization for Standardization (ISO) country codes.

**Box 2.2 (continued)**

positive effects of fiscal transparency on stronger credit ratings and easier market access (Hameed 2005; Keita, Leon, and Lima 2019).

Preserving credibility when activating escape clauses requires an effective communication strategy (Stankova 2019; Gbohoui and Medas 2020).

In particular, best practices include the publication of a credible medium-term fiscal framework (for example, *Honduras* and *Panama*), reports by the government on relevant programs (for example, *Chile* and *Germany*), and analysis by independent agencies (for example, *Colombia* and *Peru*).

## References

- Alonso, C., R. Perrelli, and Y. Xiang. Forthcoming. “Unexpected Increases in Public Debt: The Role of Forecast Errors in Debt Components.” IMF Working Paper, International Monetary Fund, Washington, DC.
- Ardanaz, M., E. Cavallo, A. Izquierdo, and J. Puig. 2021. “Growth-Friendly Fiscal Rules? Safeguarding Public Investment from Budget Cuts through Fiscal Rule Design.” *Journal of International Money and Finance* 111 (March): 102319.
- Asonuma, T., and C. Trebesch. 2016. “Sovereign Debt Restructurings: Preemptive or Post-Default.” *Journal of the European Economic Association* 14 (1): 175–214.
- Auerbach, A., and Y. Gorodnichenko. 2012. “Measuring the Output Responses to Fiscal Policy.” *American Economic Journal: Economic Policy* 4 (2): 1–27.
- Ayuso-i-Casal, J. 2012. “National Expenditure Rules: Why, How, and When.” Economic Paper 473, Directorate-General for Economic and Financial Affairs, European Commission, Brussels.
- Baker, S. R., N. Bloom, and S. J. Davis. 2016. “Measuring Economic Policy Uncertainty.” *Quarterly Journal of Economics* 131 (4): 1593–636.
- Balima, H., and A. Sy. 2021. “IMF-Supported Programs and Sovereign Debt Crises.” *IMF Economic Review* 69 (2): 427–65.
- Baum, A., P. Medas, A. Soler, and M. Sy. 2021. “How to Assess Fiscal Risks from State-Owned Enterprises.” How-To Note 21/09, Fiscal Affairs Department, International Monetary Fund, Washington, DC.
- Belu Manescu, C., and E. Bova. 2020. “National Expenditure Rules in the EU: An Analysis of Effectiveness and Compliance.” Discussion Paper 124, European Commission, Brussels.
- Benedek, D., E. R. Gemayel, A. S. Senhadji, and A. F. Tieman. 2021. “A Post-Pandemic Assessment of the Sustainable Development Goals.” IMF Staff Discussion Note 2021/003, International Monetary Fund, Washington, DC.
- Bergman, U. M., M. M. Hutchison, and S. E. Hougaard Jensen. 2016. “Promoting Sustainable Public Finances in the European Union: The Role of Fiscal Rules and Government Efficiency.” *European Journal of Political Economy* 44: 1–19.
- Bianchi, J., P. Ottonello, and I. Presno. 2021. “Fiscal Stimulus under Sovereign Risk.” NBER Working Paper 26307, National Bureau of Economic Research, Cambridge, MA.
- Blanchard, O. 2018. “Should We Reject the Natural Rate Hypothesis?” *Journal of Economic Perspectives* 32 (1): 97–120.
- Blanchard, O. 2019. “Public Debt and Low Interest Rates.” *American Economic Review* 109 (4): 1197–229.
- Blanchard, O., Á. Leandro, and J. Zettelmeyer. 2021. “Redesigning EU Fiscal Rules: From Rules to Standards.” PIIE Working Paper 21–1, Peterson Institute for International Economics, Washington, DC.
- Bohn, H. 1998. “The Behavior of US Public Debt and Deficits.” *Quarterly Journal of Economics* 113 (3): 949–63.
- Bornhorst, F., G. Dobrescu, A. Fedelino, J. Gottschalk, and T. Nakata. 2011. “When and How to Adjust beyond the Business Cycle? A Guide to Structural Fiscal Balances.” IMF Technical Notes and Manuals 2011/02, International Monetary Fund, Washington, DC.
- Bova, E., N. Carcenac, and M. Guerguil. 2014. “Fiscal Rules and the Procyclicality of Fiscal Policy in the Developing World.” IMF Working Paper 14/122, International Monetary Fund, Washington, DC.
- Bova, E., M. Ruiz-Arranz, F. Toscani, and H. E. Ture. 2016. “The Fiscal Costs of Contingent Liabilities: A New Dataset.” IMF Working Paper 16/14, International Monetary Fund, Washington, DC.
- Buti, M., and V. Gaspar. 2021. “Maastricht Values.” *VoxEU* blog, Centre for Economic Policy Research, London, July 8. <https://voxeu.org/article/maastricht-values>.
- Calderón, C., and K. Schmidt-Hebbel. 2008. “Business Cycles and Fiscal Policies: The Role of Institutions and Financial Markets.” Working Paper 481, Central Bank of Chile, Santiago.
- Caselli, F., D. Stoehlker, and P. Wingender. 2020. “Individual Treatment Effects of Budget Balance Rules.” IMF Working Paper 20/274, International Monetary Fund, Washington, DC.
- Caselli, F., and P. Wingender. 2021. “Heterogeneous Effects of Fiscal Rules: The Maastricht Fiscal Criterion and the Counterfactual Distribution of Government Deficits.” *European Economic Review* 136.
- Cerovic, S., K. Gerling, A. Hodge, and P. Medas. 2018. “Predicting Fiscal Crises.” IMF Working Paper 18/281, International Monetary Fund, Washington, DC.
- Cerra, V., A. Fatás, and S. C. Saxena. 2020. “Hysteresis and Business Cycles.” IMF Working Paper 20/73, International Monetary Fund, Washington, DC.
- Coibion, O., and Y. Gorodnichenko. 2015. “Information Rigidity and the Expectations Formation Process: A Simple Framework and New Facts.” *American Economic Review* 105 (8): 2644–78.
- Cole, H. L., and T. J. Kehoe. 2000. “Self-Fulfilling Debt Crises.” *Review of Economic Studies* 67 (1): 91–116.
- Cusato Novelli, A., and G. Barcia. 2021. “Sovereign Risk, Public Investment, and the Fiscal Policy Stance.” *Journal of Macroeconomics* 67: 103263.
- David, A., C. Goncalves, and R. Perrelli. Forthcoming. “Fiscal Reaction Functions and Fiscal Rules.” IMF Working Paper, International Monetary Fund, Washington, DC.
- David, A., J. Guajardo, and J. Yépez. 2019. “The Rewards of Fiscal Consolidation: Sovereign Spreads and Confidence Effects.” IMF Working Paper 19/141, International Monetary Fund, Washington, DC.
- Debrun, X., and L. Jonung. 2018. “Under Threat: Rules-Based Fiscal Policy and How to Preserve It.” Working Paper 2018: 29, Department of Economics, Lund University, Lund, Sweden.

- Debrun, X., and T. Kinda. 2014. “Strengthening Post-Crisis Fiscal Credibility: Fiscal Councils on the Rise—A New Data Set.” IMF Working Paper 14/58, International Monetary Fund, Washington, DC.
- Debrun, X., L. Moulin, A. Turrini, J. Ayuso-i-Casals, M. S. Kumar, A. Drazen, and C. Fuest. 2008. “Tied to the Mast? National Fiscal Rules in the European Union.” *Economic Policy* 23 (54): 297–362.
- DeLong, J. B., and L. H. Summers. 2012. “Fiscal Policy in a Depressed Economy.” *Brookings Papers on Economic Activity* (Spring): 233–97.
- Drazen, A., and P. R. Masson. 1994. “Credibility of Policies versus Credibility of Policymakers.” *Quarterly Journal of Economics* 109 (3): 735–54.
- Eberhardt, M., and A. F. Presbitero. 2015. “Public Debt and Growth: Heterogeneity and Non-Linearity.” *Journal of International Economics* 97 (1): 45–58.
- End, N. 2020. “Rousseau’s Social Contract or Machiavelli’s Virtue? Measuring Fiscal Credibility.” AMSE Working Paper 2042, Aix-Marseille School of Economics, Aix-en-Provence and Marseille, France.
- End, N., and G. Hong. Forthcoming. “Fiscal Credibility from the Perspectives of Private Forecasters.” IMF Working Paper, International Monetary Fund, Washington, DC.
- Escolano, J., and V. Gaspar. 2016. “Optimal Debt Policy under Asymmetric Risk.” IMF Working Paper 16/178, International Monetary Fund, Washington, DC.
- European Union. 2019. *Manual on Government Deficit and Debt—Implementation of ESA 2010*. 2019 ed., Luxembourg: European Union.
- Eyraud, L., X. Debrun, A. Hodge, V. Lledó, and C. Pattillo. 2018. “Second-Generation Fiscal Rules: Balancing Simplicity, Flexibility, and Enforceability.” IMF Staff Discussion Note 18/04, International Monetary Fund, Washington, DC.
- Farhi, E., and M. Maggiori. 2018. “A Model of the International Monetary System.” *Quarterly Journal of Economics* 133 (1): 295–355.
- Fatás, A., and I. Mihov. 2003. “The Case for Restricting Fiscal Policy Discretion.” *Quarterly Journal of Economics* 118 (4): 1419–47.
- Fatás, A., and I. Mihov. 2007. “Fiscal Discipline, Volatility, and Growth.” In *Fiscal Policy Stabilization and Growth: Prudence or Abstinence*, edited by G. E. Perry, L. Servén, and R. Suescún, 43–74. Washington, DC: World Bank.
- Fedelino, A., A. Ivanova, and M. Horton. 2009. “Computing Cyclically Adjusted Balances and Automatic Stabilizers.” IMF Technical Notes and Manuals 09/05, International Monetary Fund, Washington, DC.
- Fournier, J. M. 2019. “A Buffer-Stock Model for the Government: Balancing Stability and Sustainability.” IMF Working Paper 19/159, International Monetary Fund, Washington, DC.
- Fraiberger, S. P. 2016. “News Sentiment and Cross-Country Fluctuations.” Unpublished. <http://dx.doi.org/10.2139/ssrn.2730429>.
- Frankel, J. A., C. A. Végh, and G. Vuletin. 2013. “On Graduation from Fiscal Procyclicality.” *Journal of Development Economics* 100 (1): 32–47.
- Furman, J., and L. Summers. 2020. “A Reconsideration of Fiscal Policy in the Era of Low Interest Rates.” Unpublished. <https://www.brookings.edu/wp-content/uploads/2020/11/furman-summers-fiscal-reconsideration-discussion-draft.pdf>.
- Gbobou, W., and P. Medas. 2020. “Fiscal Rules, Escape Clauses, and Large Shocks.” Special Series on COVID-19, International Monetary Fund, Washington DC.
- Goodhart, C., and M. Pradhan. 2020. *The Great Demographic Reversal: Ageing Societies, Waning Inequality, and an Inflation Revival*. London: Palgrave Macmillan.
- Gootjes, B., and J. de Haan. 2020. “Procyclicality of Fiscal Policy in European Union Countries.” *Journal of International Money and Finance* 102276.
- Guerguil, M., P. Mandon, and R. Tapsoba. 2017. “Flexible Fiscal Rules and Countercyclical Fiscal Policy.” *Journal of Macroeconomics* 52: 189–220.
- Hameed, F. 2005. “Fiscal Transparency and Economic Outcomes.” IMF Working Paper 05/225, International Monetary Fund, Washington, DC.
- Hong, G. H., and D. Lucas. 2021. “Evaluating the Costs of Government Credit Support Programs during COVID-19.” Unpublished.
- Hughes, R., J. Leslie, C. Pacitti, and J. Smith. 2019. “Totally (Net) Worth It: The Next Generation of UK Fiscal Rules.” Resolution Foundation, London.
- International Budget Partnership. 2019. “Open Budget Survey.” <https://www.internationalbudget.org/open-budget-survey/open-budget-survey>.
- International Monetary Fund (IMF). 2003. “Sustainability Assessments—Review of Application and Methodological Refinements. Annex IV.” Washington, DC.
- International Monetary Fund (IMF). 2014. “Government Finance Statistics Manual 2014.” Washington, DC.
- International Monetary Fund (IMF). 2016. “Analyzing and Managing Fiscal Risks—Best Practices.” IMF Policy Paper, Washington, DC.
- International Monetary Fund (IMF). 2019. “The Fiscal Transparency Code.” Washington, DC.
- International Monetary Fund (IMF). 2021a. “2021 Comprehensive Surveillance Review—Background Paper on the Surveillance Priority Confronting Risks and Uncertainties.” IMF Policy Paper 2021/029, Washington, DC.
- International Monetary Fund (IMF). 2021b. “Issues in Restructuring of Sovereign Domestic Debt.” Washington, DC.
- International Monetary Fund (IMF). 2021c. “Review of the Debt Sustainability Framework for Market Access Countries.” IMF Policy Paper 2021/003, Washington, DC.
- Jaramillo, L., C. Mulas-Granados, and E. Kimani. 2017. “Debt Spikes and Stock-Flow Adjustment: Emerging Economies Perspective.” *Journal of Economics and Business* 94: 1–14.

- Keita, K., G. Leon, and F. Lima. 2019. "Do Financial Markets Value Quality of Fiscal Governance?" IMF Working Paper 19/218, International Monetary Fund, Washington, DC.
- Kekre, R., and M. Lenel. 2018. "Monetary Policy, Redistribution, and Risk Premia." NBER Working Paper 28869, National Bureau of Economic Research, Cambridge, MA.
- Kopits, G., and S. A. Symansky. 1998. "Fiscal Policy Rules." IMF Occasional Paper 162, International Monetary Fund, Washington, DC.
- Kose, A., and N. Sugawara. 2020. "Understanding the Depth of the 2020 Global Recession in 5 Charts." World Bank blog, June 15.
- Lucas, D. 2014. "Evaluating the Cost of Government Credit Support: The OECD Context." *Economic Policy* 29 (79): 553–97.
- Martin, P., J. Pisani-Ferry, and X. Ragot. 2021. "Reforming the European Fiscal Framework." *Les notes du conseil d'analyse économique* 63, French Council of Economic Analysis, Paris.
- Mauro, P., R. Romeu, A. Binder, and A. Zaman. 2015. "A Modern History of Fiscal Prudence and Profligacy." *Journal of Monetary Economics* 76: 55–70.
- Mauro, P., and J. Zhou. 2021. " $r-g < 0$ : Can We Sleep More Soundly?" *IMF Economic Review* 69: 197–229.
- Mauro, P., and J. Zilinsky. 2016. "Reducing Government Debt Ratios in an Era of Low Growth." Policy Brief 16–10, Peterson Institute for International Economics, Washington, DC.
- Mendoza, E. G., and J. D. Ostry. 2008. "International Evidence on Fiscal Solvency: Is Fiscal Policy 'Responsible'?" *Journal of Monetary Economics* 55 (6): 1081–93.
- Moreno Badia, M., J. Gamboa Arbelaez, and Y. Xiang. 2021. "Debt Dynamics in Emerging and Developing Economies: Is R–G a Red Herring?" IMF Working Paper 21/229, International Monetary Fund, Washington, DC.
- Moreno Badia, M., P. Medas, P. Gupta, and Y. Xiang. 2020. "Debt Is Not Free." IMF Working Paper 20/1, International Monetary Fund, Washington, DC.
- Orphanides, A., and S. van Norden. 2002. "The Unreliability of Output Gap Estimates in Real Time." *Review of Economics and Statistics* 84 (4): 569–83.
- Panizza, U., and F. Tadei. 2020. "Local-Currency-Denominated Sovereign Loans—A Portfolio Approach to Tackle Moral Hazard and Provide Insurance." HEID Working Papers 09–2020, International Economics Department, Graduate Institute of International Studies, Geneva.
- Portes, J., and S. Wren-Lewis. 2015. "Issues in the Design of Fiscal Policy Rules." *The Manchester School: Proceedings of Centre for Growth and Business Cycle Research Conference* 83 (S3): 56–86.
- Rachel, L., and L. H. Summers. 2019. "On Falling Neutral Real Rates, Fiscal Policy, and the Risk of Secular Stagnation." In *Brookings Papers on Economic Activity*, BPEA Conference Drafts, March 7–8, Brookings Institution, Washington, DC.
- Romer, C. D., and D. H. Romer. 2019. "Fiscal Space and the Aftermath of Financial Crises: How It Matters and Why." *Brookings Papers on Economic Activity* (Spring): 239–331.
- Saxena, S. 2017. "Fiscal Policy: How to Strengthen the Management of Government Guarantees." How-To Note 6, Fiscal Affairs Department, International Monetary Fund, Washington, DC.
- Schmidt, S. 2017. "Fiscal Activism and the Zero Nominal Interest Rate Bound." *Journal of Money, Credit and Banking* 49 (4): 695–732.
- Selassie, A. A., and A. Tiffin. 2021. "The Policymaker's Trilemma." IMF Blog, May 12.
- Shapiro, A., M. Sudhof, and D. Wilson. 2020. "Measuring News Sentiment." Federal Reserve Bank of San Francisco Working Paper 2017–01. <https://doi.org/10.24148/wp2017-01>.
- Shapiro, A., and D. Wilson. 2021. "Taking the Fed at Its Word: A New Approach to Estimating Central Bank Objectives Using Text Analysis." Federal Reserve Bank of San Francisco Working Paper 2019–02. <https://doi.org/10.24148/wp2019-02>.
- Stankova, O. I. 2019. "Frontiers of Economic Policy Communications." Departmental Paper 19/08, International Monetary Fund, Washington, DC.
- Sturzenegger, F., and J. Zettelmeyer. 2007. "Creditors' Losses versus Debt Relief: Results from a Decade of Sovereign Debt Crises." *Journal of the European Economic Association* 5 (2–3): 343–51.
- Ter-Minassian, T. 2017. "Identifying and Mitigating Fiscal Risks from State-Owned Enterprises (SOEs)." IDB Discussion Paper 546, Inter-American Development Bank, Washington, DC.
- UK Office for Budget Responsibility. 2021. *Fiscal Risks Report*. London: UK Office for Budget Responsibility.
- Weber, A. 2012. "Stock-Flow Adjustments and Fiscal Transparency: A Cross-Country Comparison." IMF Working Paper 12/39, International Monetary Fund, Washington, DC.
- World Bank. 2015. *Global Economic Prospects, January 2015: Having Fiscal Space and Using It*. Washington, DC: World Bank.